DECEMBER, 1953

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LEA newsreel

DECEMBER 19

LEA COMPOUND

Greaseless Composition for clean, effective and economical finishing on a wide variety of products.

For Polishing, Buffing, Burring, Satin Finishing; can be used on metals, plastic and wood.

CASE STUDY #1

Material: Brass.
Article: Escutcheon plates, and other builders' hardware.
Method of Forming: Wrought.
Final Finish: Imitation Butler silver.

Lea Method:

1. 120 grease set-up wheel.
2. Clean by acid dip.
3. Lea Compound Grade "N" on 10" diameter loose muslin buff 64/68 at 1800 r.p.m.
4. Nickel plate.
5. Lea Compound Grade "N" or "F" on 10" diameter loose muslin buff 64/68 at 1400 r.p.m.

Remarks: The Lea Method gave a better imitation of silver and materially lowered costs by eliminating cut-down buffing operation formerly used after the polishing step, and all cleaning and drying after final satin finishing operation.

CASE STUDY #2

Material: Brass.
Article: Escutcheon plates, door handles, etc. All types of builders' hardware.
Method of Forming: Cast.
Final Finish: Brushed brass.
Lea Method:

1. 120 set-up wheel.
2. Lea Compound Grade "N" on 10" loose buff at 1500 r.p.m.
3. Lacquering.

Remarks: Lea Method eliminated the additional set-up wheel operation, cut-down buffing, cleaning and drying, and replaced the messy wet scratch brush step.

CASE STUDY #3

Material: Plastic (black Bakelite).
Article: Knife handles.
Method of Forming: Molding.
Final Finish: High lustre.
Lea Method:

1. 180 dry belt sanding to remove heavy gates.
2. Lea Compound Grade "C" on a 10" diameter 1:1 packed muslin buff at 1750 r.p.m., for the removal of the parting line, and the marks at the end from the previous belt operation.
3. Cut-down buffing with Grade 306 Black Learok on a 12" diameter loose muslin buff at 1750 r.p.m.
4. Lustre buffing with Grade 304 Black Learok on a 12" diameter loose muslin buff at 1750 r.p.m.

Remarks: Lea Compound on a packed buff is able to get in and out of finger grips on the handle and remove the parting line without any danger of burning. If a high lustre is not required, the smooth finish produced by Grade 306 Black Learok will be sufficient.

CASE STUDY #4

Material: Brass.
Article: Pocketbook ornaments.
Method of Forming: Stamped from sheet.
Final Finish: Dull gold plate.
Lea Method:

1. Lea Compound Grade "S" on side of 6" medium hard felt wheel at 3600 r.p.m.
2. Lea Compound Grade "S" on 5" cloth buff at 1200 r.p.m.
3. Gold plate.
4. Lacquering.

Remarks: The desired dull finish is produced by the Lea Method without any scratch brushing on the gold plate. The thickness of gold can therefore be decreased.

CASE STUDY #5

Material: Zinc.
Article: Automobile hardware.
Method of Forming: Die casting.
Final Finish: Bright chromium.
Lea Method:

1. 150 set-up wheel on flash.
2. Lea Compound Grade "C" on 12" sew buff at 2500 r.p.m.
3. Copper plate.
4. Cut and color buffing with Grade 1 Learok.
5. Bright nickel plate.
6. Chromium plate.

Remarks: Flexible polishing with Lea Co pound removes the irregularities in the surfa left by the hard set-up wheel required to move sharp, heavy flash. A smooth surface produced on the zinc without lubrication, mi mizing cleaning before plating.

CASE STUDY #6

Material: Zinc.
Article: Interior trim for automobiles.
Method of Forming: Die casting.
Final Finish: Brush nickel plate.

Lea Method:

1. 120 set-up wheel.
2. Lea Compound Grade "C" on 12" poc eted type buff at 1800 r.p.m.
3. Nickel plate.
4. Lea Compound Grade "F" on the san type buff at 1200 to 1500 r.p.m.

Remarks: Flexible polishing with Lea Co pound is substituted for cut-down buffing pl wet scratch brushing. The final Lea Compoun operation leaves the work ready for assemblin without cleaning and drying.

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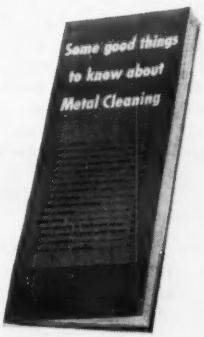

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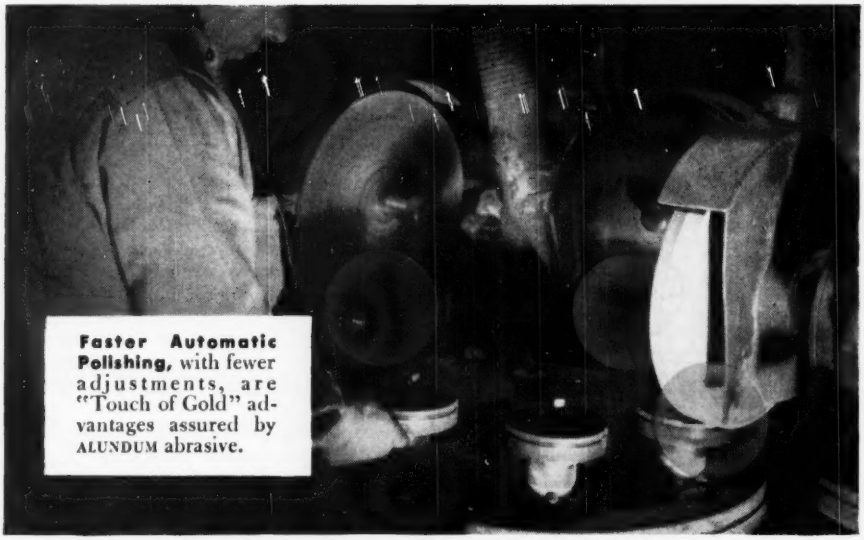

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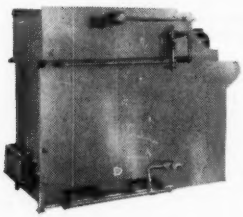

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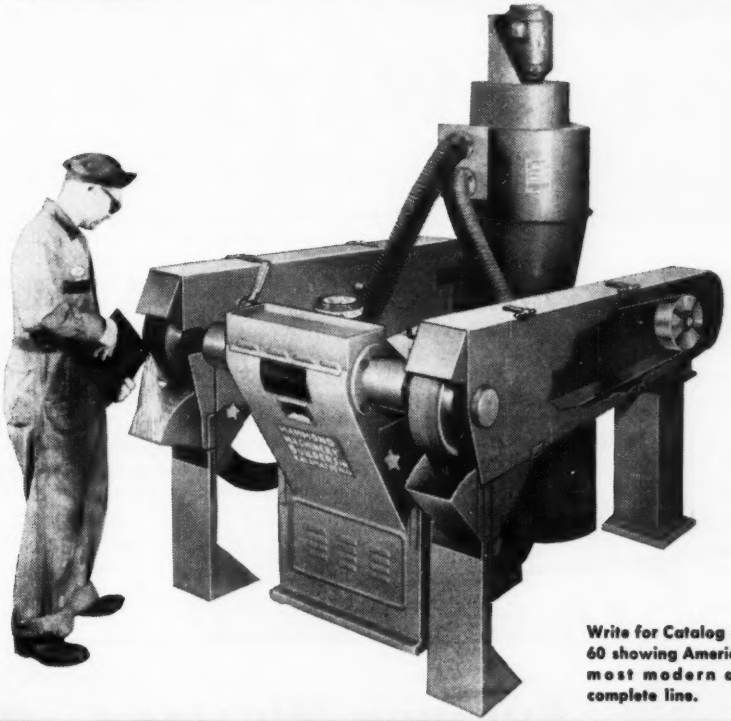

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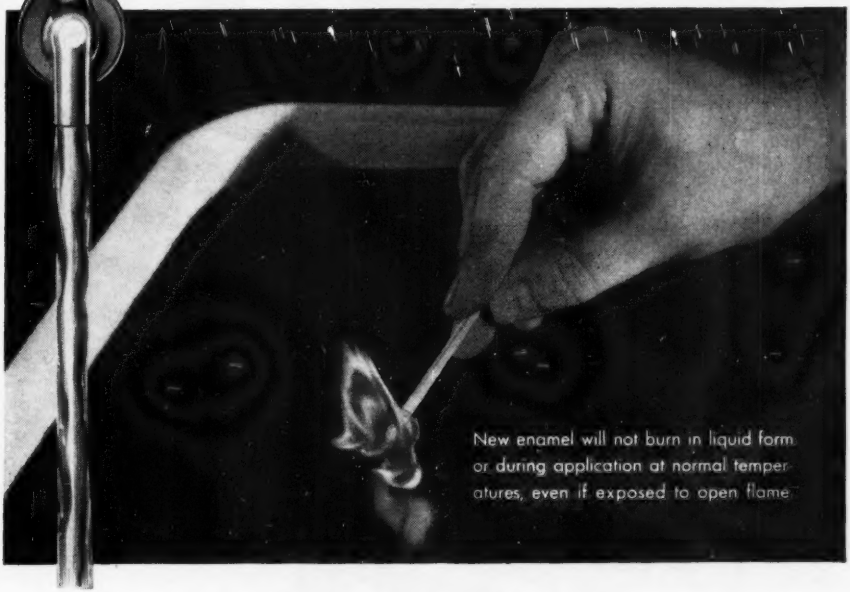

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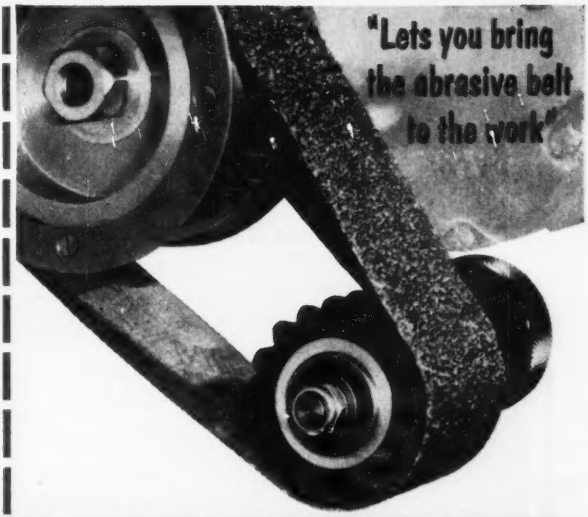

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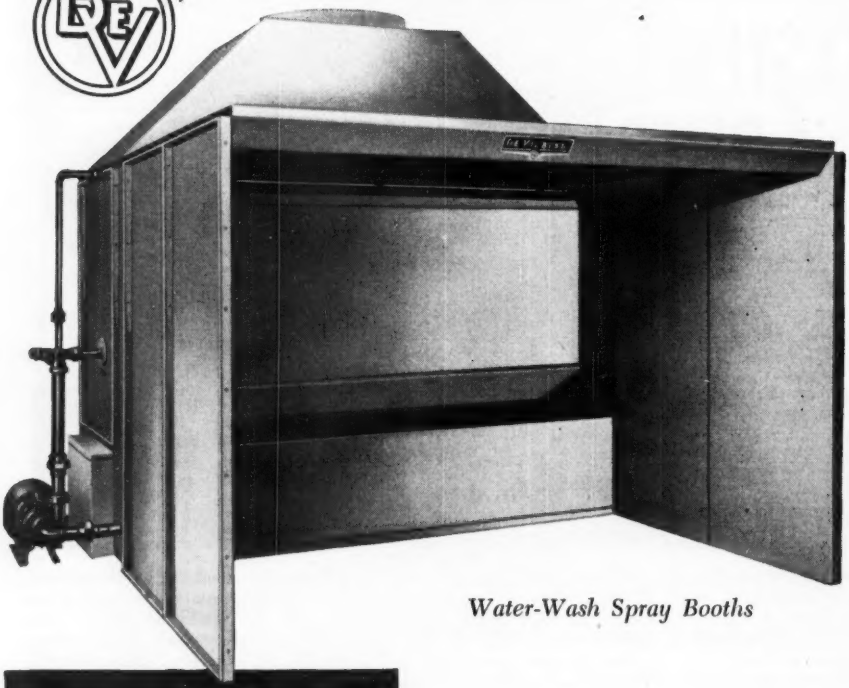

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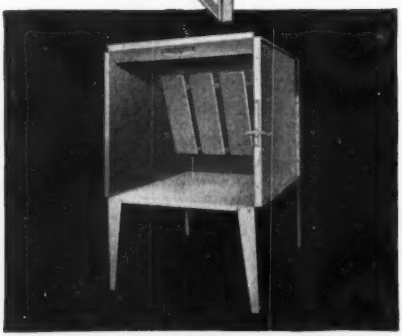

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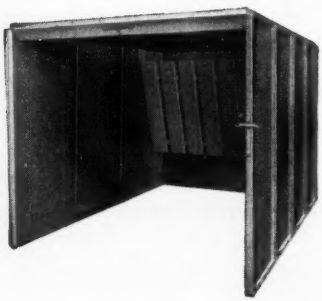

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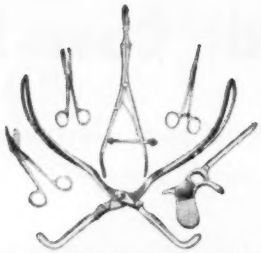

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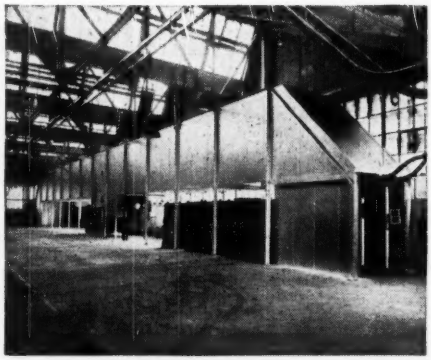

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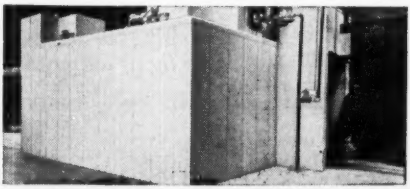

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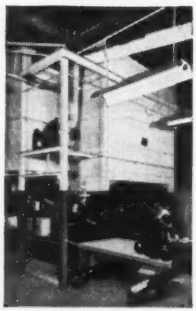

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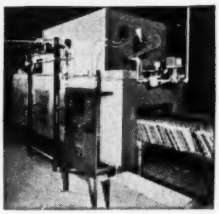

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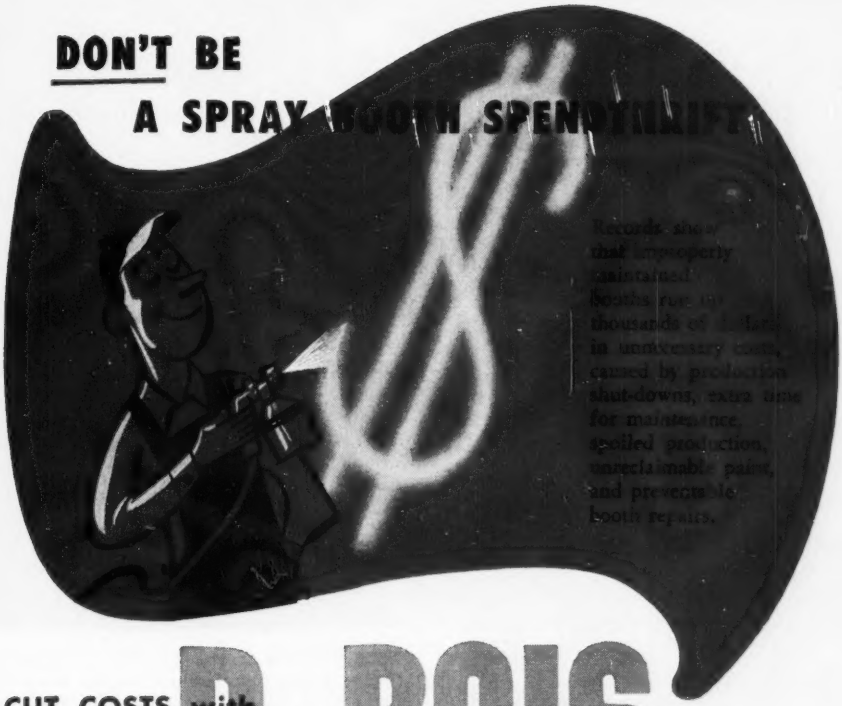

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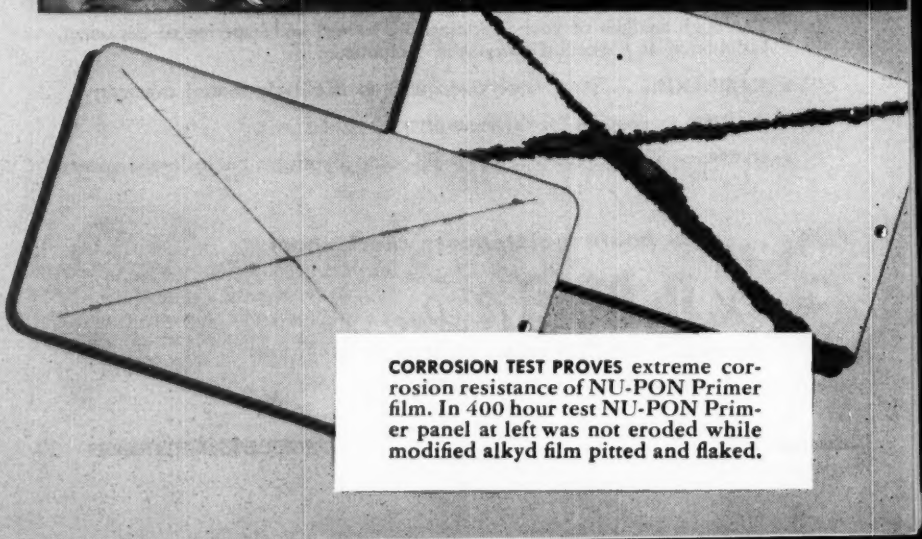

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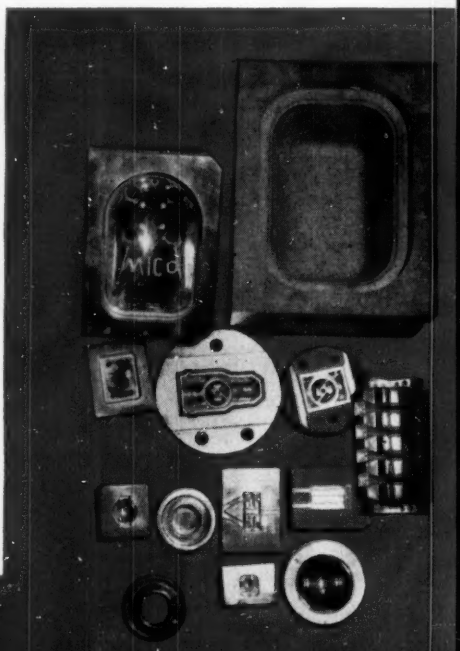
Hard Chrome Plating Made Easy

By EZRA A. BLOUNT
Editor

Hard chromium plating of dies for the plastic molding industry, gages, tools, and parts for special applications is a job for specialists. At Nutmeg Chrome Corporation, a leading specialist in chrome plating plastic molding dies, base metal preparation, cleaning procedures, ingenuity in plating rack design, plating methods, and metal treatment after plating all are combined to give to each customer's job a "custom tailored" finish.

HARD chromium plating has solved problems and made outstanding contributions to a number of industries including the printing, metal working, aircraft, and automotive industries. Perhaps its outstanding contribution, however (from the standpoint of what it has contributed to the success of the indutry), has been made in the field of plastic molding. Dr. D. A. Cotton[1] has reported that, prior to the development or application of hard chromium plating to plastic molding dies, it was necessary to clean and polish the die surfaces as much as once a day to keep the surfaces clean and smooth so that the molds would "release" and exhibit



ARTHUR W. LOGOZZO, founder and president of Nutmeg Chrome Corporation, and a past president of the American Electroplaters' Society, describes the field of hard chromium plating as being one of the most exploited and least explored branches of the plating industry. Believing firmly in the fact that it is a job for specialists, he points out further that, to do this type of plating properly, a detailed knowledge of chromium plating as well as the customer's problems, a stock of standard yet adaptable racks, and a group of mechanically inclined people, are required.

Mr. Logozzo suggests that each new application for hard chromium plating be analyzed from an engineering standpoint, to insure that chromium plate's useful properties of a low coefficient of friction and excellent resistance to wear are employed advantageously. Normally, chromium plating should not be used as a substitute for hardening.

Purchasing agents and product engineers are urged to familiarize themselves with the properties and uses of hard chromium plating, so that they can specify that finish for those applications where it can best serve. Mr. Logozzo urges buyers of chromium plating to deal only with ethical, experienced, established, specialists in the field. He points out that qualified hard chrome platers will welcome an inspection of their plants and facilities by customers and prospective customers. Perhaps, one day, all such plating plants will be certified both for the protection of the customer, and for the benefit of the entire industry.*

***See "A Need for Increased Understanding," PRODUCTS FINISHING, May, 1953.**

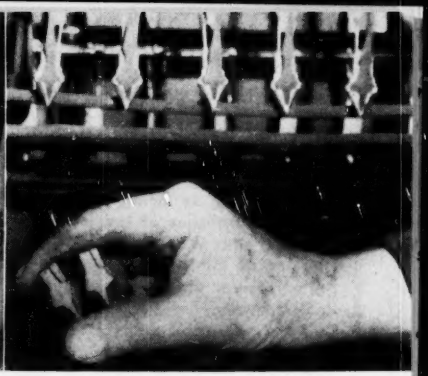
smooth, polished surfaces. Die wear was appreciable, as was die replacement. Production speed was reduced by the amount of time a die had to be out of the press for polishing and cleaning.

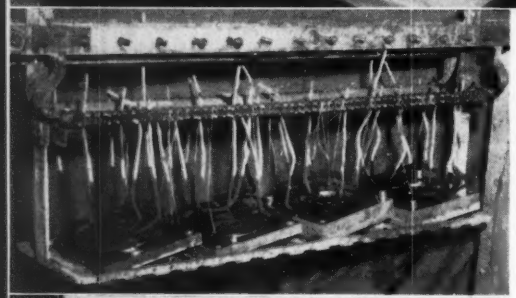
Now that a bright, smooth, hard chromium plate is applied to plastic molding die surfaces, dies can be used for long periods of time without difficulty. From the standpoint of die service alone, the plastic molder will be quick to agree that he owes a great deal to the hard chrome plater.

●

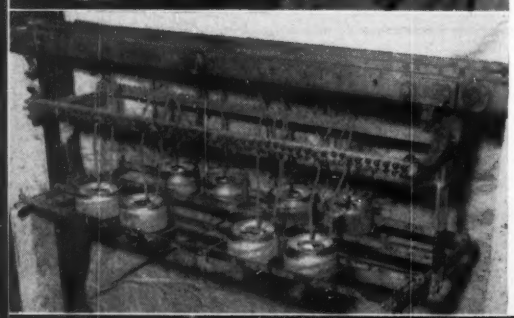
Fig. 1 (left)—A few of the many types of dies which receive a hard chromium surface at Nutmeg Chrome Corporation. The large die has a very rough surface which will require a long series of polishing operations to prepare it for plating.

Fig. 2 (right)—A view of the die polishing section of the shop. Operators employ flexible shaft polishers with motors mounted overhead. The tanks shown at the left are the cleaning and etching tanks which prepare the dies for hard chrome plating.

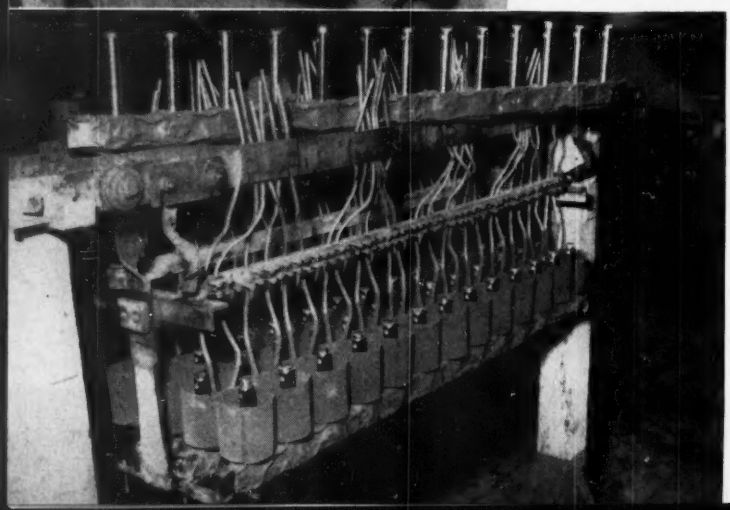




As any plater who has tried to do hard chrome plating has discovered, the hard chrome plating of dies (as well as other products) is an exacting process, requiring the maintaining of close tolerances in dimensions, application of a chromium plate of uniform thickness, achieving perfect adherence of the electrodeposit, and



Figs. 3-7—These photos illustrate several typical rack setups for hard chromium plating various kinds of dies. As can be noted, rack frames are standard sizes, and many adaptations of anode and cathode positions can be made. To be noted in the photos are the special anodes—two sizes of anode wire are used in some setups—the use of sheet lead shields or wires for edges, as well as the fact that racks are designed so that the entire cathode section can be dropped easily and another loaded section quickly raised in its place. This makes for a more efficient utilization of tank time and eliminates much painstaking and time-consuming anode arrangement. In the photo at left a typical cathode assembly has been placed on top of the complete plating rack. Such cathode assemblies can be mounted in a plating rack in a few minutes.



preserving the desirable metallurgical characteristics of the metal product so that it will have the necessary resistance to fatigue and mechanical wear. It is not surprising therefore, that hard chrome plating is a highly specialized branch of the electroplating industry. Further, since the hard chrome plater, to be able to do the best job for his customers, must have a good idea of his customer's problems, these platers have further specialized to some extent, as to the type of hard chrome plating they solicit. The investment in specialized plating equipment for hard chrome plating is substantial, and it is therefore advantageous to have a greater volume of work of one type.

One of the leading hard chrome plating shops catering to the plastic molding industry, having become fully conversant with the problems and requirements of that industry, is the Nutmeg Chrome Corporation, of West Hartford, Connecticut. Founded in 1944 and still headed by Arthur W. Logozzo, Nutmeg Chrome serves as an excellent example of what a job plating shop should be, as well as a reminder that specialization in the job plating industry is desirable, from the standpoint of both the customer and the plater.

Metal Surface Preparation

The amount of surface preparation for plating depends, of course, on the condition of the metal surface when the part is received for plating. Parts received at Nutmeg Chrome (see Fig. 1) vary in condition from rough (almost as rough as an original casting) to a very smooth machined or polished finish. Surface hardness and internal stress conditions vary just as widely, and require an equal amount of consideration on the part of the plater. In all cases, bearing in mind that the main function of chromium plating is the reduction of friction on parts subject to wear, the metal surface is made as smooth as possible both before and after plating. Another point to

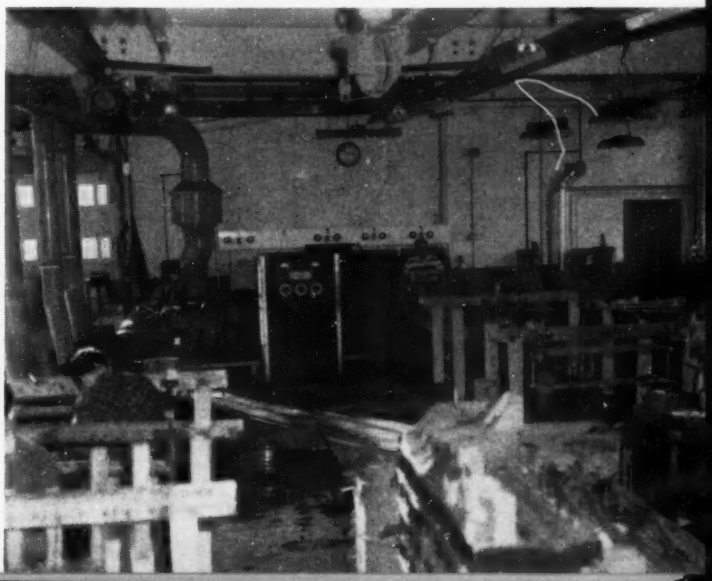


Fig. 8—A general view of the hard chrome racking and plating section. The ceiling - mounted overhead monorail conveyor and electric hoist can be noted. By this means racks of parts can be processed easily from racking, through plating and back to unracking. Pretreatment tanks are at left and hard chrome plating tank is at the far end of the room (background of photo). The large rectifier is a Sel-Rex 2500 amp., 6 volt rectifier used for the reverse current treatment in chromic acid (or etching) prior to plating.

be considered is that the surface structure of the base metal determines the surface structure of the chromium plate.

Parts received covered with scale or an oxide coating are prepared for plating by reverse current etching or pickling in inhibited sulfuric acid as a first treatment. This operation is followed by, or may be replaced by, vapor blasting, depending upon the amount of scale or rust present. Progressive polishing operations are as follows:

1. Smooth surface with a rough stone (100 to 300 mesh).
2. Polish with 500 to 600 mesh Carborundum stone.
3. Hand lap with laminated plastic lap and Carborundum lapping material suspended in a lanolin base paste. Repeat with progressively finer lapping compounds.
4. Use felt bobs on power-driven spindles with a fast cut rough or diamond polishing media.
5. Polish to high luster with muslin buff or bob on powered spindle using fine chrome rouge buffing compound (see Fig. 2). Formax and Mosher fast cut stainless steel buffing compounds are used for this operation.

Parts received with machined or ground surface finishes (gages, tools, journals, dies, and so on) are cleaned, reverse-current pickled, and/or vapor blasted. The surfaces are then buffed smooth, using either felt bobs for the interior surfaces, or conventional buffing lathes for the external or convex surfaces. Fast cut stainless steel buffing compound is employed. In all cases the shape of the part determines the shape of the buff or felt bob.

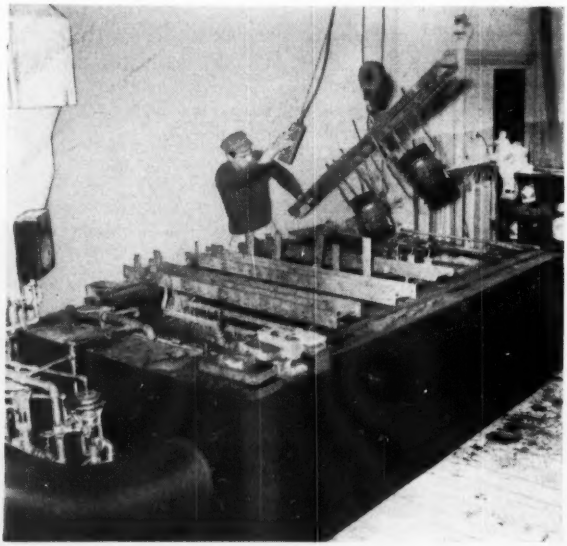
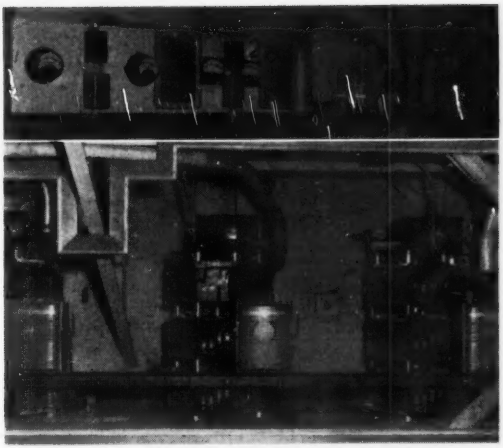


Fig. 9—Two radial engine cylinders are removed from the 800 gallon chromium plating tank. At extreme left can be noted the Bristol recorder-controller which keeps the tank temperature at the specified figure. An exhaust hood around three sides of the plating tank removes fumes which are exhausted to the plant roof through the large exhaust pipe shown in the left foreground. Also at left can be noted the collecting and backwashing section on the vertical part of the exhaust pipe. This reduces to a low figure the amount or quantity of fumes that leave the plant. An inspection of the plant roof and surrounding area shows almost no trace of chromic acid—a necessity in an attractive industrial area.

Fig. 10—Not shown in Fig. 9, but located adjacent to the chrome plating tank, are the push-button controls and voltmeters for the power-actuated powerstats that make possible "hair-line" control of plating voltage and current for close-tolerance hard chrome plating jobs.

Fig. 11—A view of some of the powerstats (products of the Superior Electric Company, Bristol, Conn.) mounted behind the plating room wall, away from any possible shop dust, for ease of maintenance and longer life.



Parts that are to be chromium plated slightly oversize and then finish ground to size, are still buffed as smooth as possible prior to plating. This care in surface preparation, coupled with skill in plating technique, produces a smoother and finer grained final chromium plate. This has two advantages to the customer: it cuts down his grinding wheel cost; and it produces for him a chromium plate of very fine structure which lends itself well to fine lapping to extremely close tolerances.

Hobbing tools received for chromium plating are stress relieved, cleaned, and then buffed to a high luster. Dies with irregular surfaces are cleaned, pickled, and then brush finished with various shapes and kinds of brushes, using dry aluminum oxide for final coloring. Such brushing operations are used for hard-to-clean-out corners, letters or numerals, or the surface of a stippled or grained finish. Brushing operations complement the normal surface preparation steps, being used where felt bobs or hand laps cannot be used.

Rack Design and Racking Technique

Racks for hard chromium plating must be both versatile and as simple as possible in order to hold down plating cost. Even so, such racks are rather complicated, as the accompanying photos (Figs. 3-7) illustrate. In the Nutmeg plant, parts to be plated are racked on large cross-frames or cathode frames, built to occupy the width of the plating tank. As many parts of the same kind are racked on each frame as is possible. Then both anode and cathode setups are mounted on the same cathode frame. The setup is designed further so that the entire cathode section can be dropped at one time and another cathode section raised into position. This minimizes time between loads. Generally, at least one loaded frame is awaiting tank space, so that one frame can be removed, and another put in its place quickly. This increases the plating tank output, and reduces lost time. For most efficient operation in a hard chrome plating shop, it is necessary to keep the plating tank full

Table I

SURFACE PREPARATION FOR HARD CHROMIUM PLATING

Metal Basis	Treatment Alkaline	Medium Etching	Thickness of Plate	Etching Time
Low carbon steel	Anodic 16 oz./gal. 6 volts	Anodic 28 oz./gal. chromic acid	0.0002″ 0.001″ 0.005-0.010″	½ - 1 min. 2 - 4 min. 5 - 10 min.
High carbon steel	Anodic 16 oz./gal. 6 volts	Anodic 28 oz./gal. chromic acid	0.0002″ 0.001″ 0.005-0.010″	15 - 30 sec. 1½ - 3 min. 3 - 5 min.
Moly steel (ordinary)	Anodic 16 oz./gal. 6 volts	Anodic 28 oz./gal. chromic acid	0.0002″ 0.001″ 0.005″	1 min. 5 - 6 min. 10 - 15 min.
Moly steel (difficult)	Anodic 16 oz./gal. 6 volts	25% sulfuric acid	0.0002″ 0.001″ 0.005″	½ min. 1 - 2 min. 2 - 3 min.
Nickel-chrome alloys	Immersion soak	Anodic 28 oz./gal. chromic acid	0.0002″ 0.001″ 0.005-0.010″	½ - 1 min. 2 - 3 min. 5 min.
High speed steel	Immersion clean	Anodic 28 oz./gal.	0.0002″ 0.001″	10 - 15 sec. 15 - 30 sec.
Stainless steel	Cathodic clean	Immerse in 10% sulfuric acid prior to anodic etch in chromic acid	0.0002″ 0.001″ 0.005″	10 - 15 sec. 15 - 30 sec. 1 - 2 min.

Based on data presented at 32nd Annual Convention American Electroplaters' Society.

as much of the available time as possible, because plating tank time lost cannot be recovered.

Plating racks and fixtures are constructed of copper and steel for strength and current carrying capacity, and the anodes (and cathode masks or thieves) are made from 1½ per cent antimony lead wire or sheet. This has been found to have just the right stiffness so that it can be formed easily, hold its shape properly, and still serve its functions as an anode. (Copper and steel sections of racks and cross bars are chromium plated so that there will be no corrosion during use or storage.) Several sizes of the antimony-lead wire are stocked, so that anodes for any type of part can be constructed when necessary. Experience has shown which sizes work best for certain parts, and where experience stops, ingenuity takes over in designing racks for new parts or improving the design of racks previously made. The principle followed is to use metal thieves on sharp corners, and place small anodes close to low current density areas, with larger anodes farther away from high current density areas. In most cases

Figs. 12-13—Final polishing operations on a chromium plated molding die involve the use of felt bobs on a flexible shaft polisher. A white fast cut stainless steel polishing and buffing compound is employed.

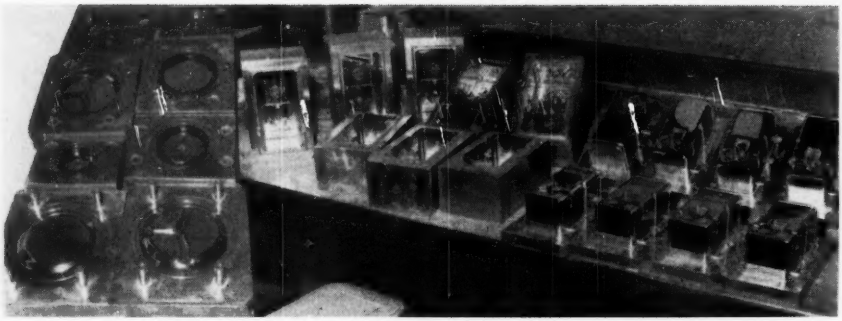
the anode-to-cathode spacing is quite close, and must be uniform for all parts of the same kind on the same rack. Rack insulation of various kinds is employed as needed to eliminate waste of current and metal in plating areas of parts or racks unnecessarily.

Chromium Plating Process

A loaded plating rack of parts to be plated, mounted in suitable anode and cathode frames, is conveyed or carried by an electric hoist attached to an overhead monorail (see Fig. 8) that runs in an oval connecting the loading area with the pretreatment tanks and the plating tank proper. The cleaning and preplating treatment depends on the material being plated[2] (See Table I). Mr. Logozzo states that the older, simpler steels are the easiest to plate, while the modern complex steel alloys must be treated very carefully in order to get a high quality plate. Generally, the preplating treatment cycle consists of:

1. Alkali clean, anodically.
2. Cold water rinse.
3. Reverse current clean in a solution of 28 oz./gal. chromic acid held at a temperature warmer than that of the plating tank (usually above 120 deg. F.) The time of treatment depends on the material or alloy being plated, the thickness of plate to be applied, and similar factors.

Following the reverse current treatment in chromic acid, the rack of parts is placed directly in the chromium plating tank proper. The 800 gallon chromium plating solution contains 400 g/l (53.8 oz./gal.) chromic acid with a sulfate ratio of 100:1. Temperature is held usually at 120 deg. F. Each large rack of parts is connected to its own individual rectifier, and the plating current is controlled by regulating the voltage of the rectifier, since experience has taught the operators what voltage to use on parts of various sizes and kinds to produce certain plate thicknesses in given times. The rectifiers are fitted with powerstats, which make possible continuous voltage variation or adjustment to secure the desired voltage setting. In hard chromium plating intricate parts, exact current density and voltage must be used. Powerstat control on the rectifier makes it possible to obtain exactly the voltage desired. Further, it is essential to have full-wave recti-



Figs. 14-15—Two groups of plated plastic molding dies ready to be shipped to customers.

fication for close-anode, low-current-density work.

The steel chromium plating tank is lined with polyethylene, which in recent years is being used more and more as a lining material. The tank is heated by steam by means of a lead Platecoil, and the temperature is controlled by means of a Bristol recorder-controller. Power is furnished by four Udylite 1500 amp. and one Sel-Rex 2000 amp., 6 volt rectifiers, each of which may be connected to a large plating frame or rack through plating stations located on the tank sides (see Fig. 9), spaced properly to permit independent loading and unloading of the various tank plating positions. After being plated for the proper length of time to form the specified thickness of plate, the racks are removed from the tank (see Fig. 9), given a double water rinse, spray rinsed, and conveyed to the loading and unloading station or area.

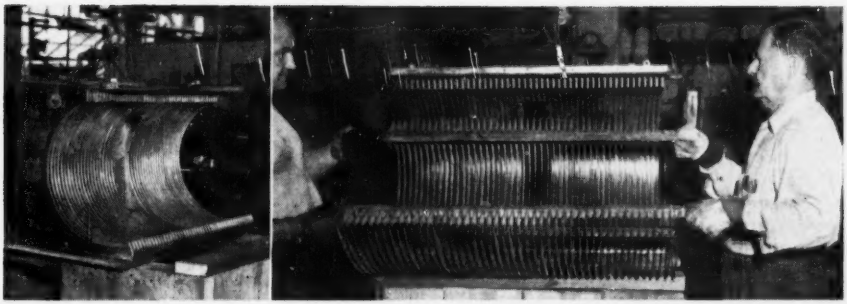
Stress Relief and Final Finishing

Chromium plated parts such as shafts or journals—to be ground to size following the chromium plating buildup or salvage operation—are unracked, rinsed thoroughly, dried, and baked in an oven at 350 deg. F. for 1 to 3 hours depending upon the cross sectional area of the part. This treatment relieves any possible stress or brittleness resulting from the chromium plating operation. Taps, cutting tools, or high speed steel parts are stress relieved between 400 and 500 deg. F. Since most molds for plastic fabricators operate at 350 deg. F., no stress relief following plating is necessary. Stress relief occurs during plastic molding itself.

Molds, dies, or other parts which must have highly polished surfaces are polished after hard chrome plating with felt bobs, buffs, or brushes as required by the shape of the part (see Figs. 12-13). A fast cut stainless steel buffing compound or green chrome rouge is used for the buffing operation. For a final high-luster treatment, the products are washed in solvent and then polished with dry aluminum oxide powder (see Figs. 14-15).

Decorative Finishes

Nutmeg Chrome maintains a decorative plating department to fill orders from customers with particularly difficult plating problems, or



Figs. 16-17—Two views of a piece of electronic equipment, copper plated to 0.005 inch thickness with very close tolerances—one of the more difficult jobs performed by Nutmeg. Photo on right shows platers adjusting specially designed inside anode.

those whose quality standards and specifications are unusually high. Two jobs may be cited as representative of the type of work in this department: bright nickel and chromium plating of aluminum scissors; bright nickel and chromium plating of brass reflectors for flash cameras.

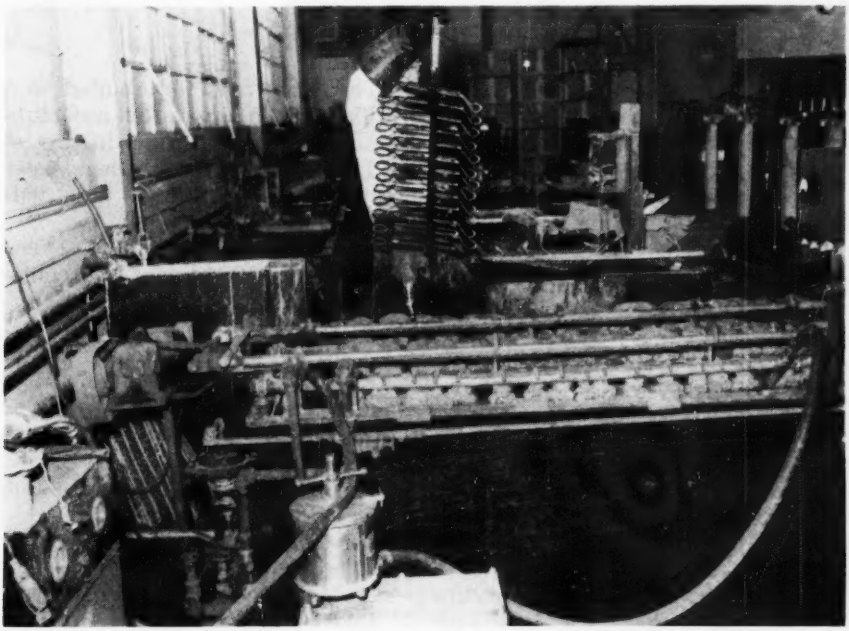


Fig. 18—A rack of aluminum scissors is placed in the 400 gal. Udylite bright nickel solution for plating. Cathode rod agitator can be noted at left of photo. Alsop filter, foreground, is hooked up for periodic or continuous filtration as required. Small rectifier and dummy cathodes for electrolytic purification of solution can be seen at extreme left of photo.

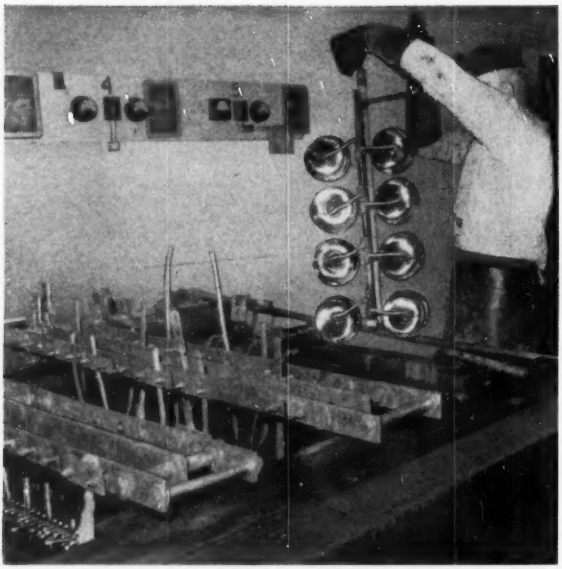


Fig. 19—A rack of brass, bright nickel plated reflectors has been fitted with a special anode frame for chromium plating, and is now ready to be placed in the chromium plating tank for the final plating operation. Since each section of the chromium plating tank is connected to a separate power source, the addition or removal of work does not affect the other racks of parts in the tank. A plating rack of this design was exhibited as a part of the Hartford Branch Exhibit at the A.E.S. Convention held recently in Philadelphia. Both anode frame and cathode rack are protected by an orange rack insulating material formulated by Stanley Chemical Company.

In addition to appearance standards, the deposit on the scissors must have perfect adherence. In the case of the reflectors, there must be no trace of scratch or defect on the reflecting surface. The parts are not buffed after plating, so that perfect plate must be deposited.

The aluminum scissors are plated in the following process:

1. Rack and soak clean in an alkaline cleaner.
2. Water rinse.
3. Dip in 5 per cent hydrofluoric acid.
4. Water rinse.
5. Dip in Alumon 44 held at 80-90 deg. F.
6. Water rinse.
7. Bright nickel plate in Udylite bright nickel tank (see Fig. 18).
8. Chromium plate.
9. Hot water rinse and dry.

The brass reflectors, buffed to a brilliant finish, are racked and chromium plated in the following cycle:

1. Soak clean in alkaline cleaner and swab lightly with soft cleaning mop.
2. Water rinse.
3. Dip in 10 per cent hydrochloric acid.
4. Water rinse.
5. Bright nickel plate at 120 deg. F. in Udylite bright nickel.
6. Water rinse.
7. Attach special anode rack to each rack of reflectors.
8. Chromium plate in the 800 gallon chromium plating tank, employing separate rectifier for power (see Fig. 19).
9. Hot water rinse and dry.

Like the racks used for hard chromium plating, the racks used for decorative plating are designed and built by Nutmeg. They are insulat-

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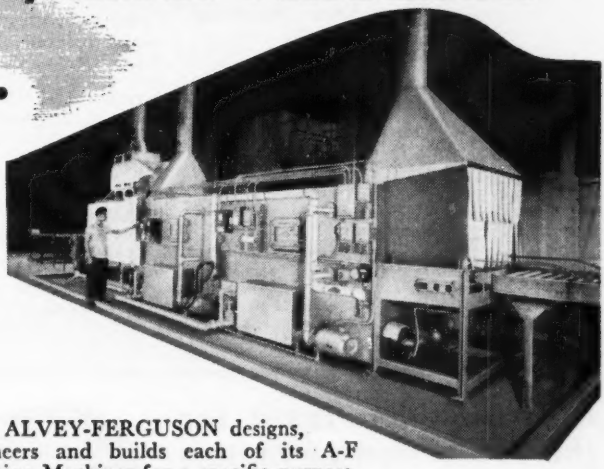

ALVEY-FERGUSON designs, engineers and builds each of its A-F Washing Machines for a specific purpose. Whether your plant's problem is to clean lubricants from cartridge cases before annealing, to clean and dry miscellaneous ball bearing parts without the use of baskets, remove all chips from diesel motor blocks or some other phase of quality control in your metal parts or products operation, you'll find your A-F Washing Machine as highly specialized for your specific needs as any precision equipment now in your plant. Why be satisfied with less?

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ed with a plastisol rack coating formulated by Stanley Chemical Company.

Literature References

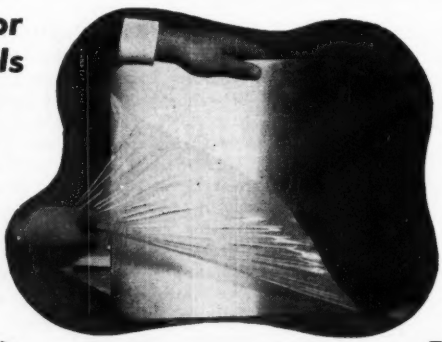
1. D. A. Cotton, "Chromium Plating Dies and Gages," Proceedings American Electroplaters' Society, 1939.
2. Arthur W. Logozzo, "Hard Chrome Problems," Proceedings American Electroplaters' Society, 1944.
3. D. A. Cotton, "Hard Chromium Plating," Proceedings American Electroplaters' Society, 1944.
4. "Chromium Plating Methods," PRODUCTS FINISHING *17*, 58, February, 1953.

GUIDE TO BETTER PLATING POWER. The 12-page **CATALOG No. 127** available from **Bart-Messing Corporation**, 229 Main St., Belleville 9, N. J., describes and illustrates the construction of a typical Sel-Rex Selenium Rectifier. Also pictured and described are Basic Units, Basic Units with Remote Control, Self - Contained Units, Barrel Plating Units, Reactronic Units, Anodizing Units, Water Cooled Units, and Laboratory Units.

"RADI-HEAT" LINE BURNERS. A neatly printed, illustrated sheet describing Burdett "Radi-Heat" Line Burners may be secured from **Burdett Manufacturing Co.**, 3447 West Madison St., Chicago 24, Ill. Seventeen mechanical features of the "Radi-Heat" Burner are listed.

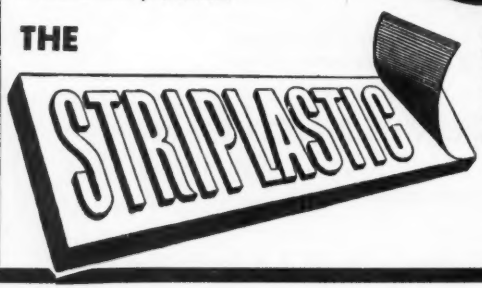
Also available from Burdett Manufacturing Co., is a sheet explaining the use of the Burdett Burn-Off Process to degrease, rust inhibit, and produce a surface for proper paint adhesion in one operation. Entitled, **THE BURN OFF PROCESS**, the sheet is illustrated with photographs of the Burdett Radiant Heat Burner.

A Strippable Plastic for the Protection of Metals



Striplastic is a protective plastic applied by spraying, dipping or rolling. It is used on stainless steels, high polished metal sheets, sheets in cold working or drawing, tools, dies and parts, and on sheets or metal parts before packaging. It protects against scratching and abrasion, and against rust. Also available as a booth coat protection.

THE



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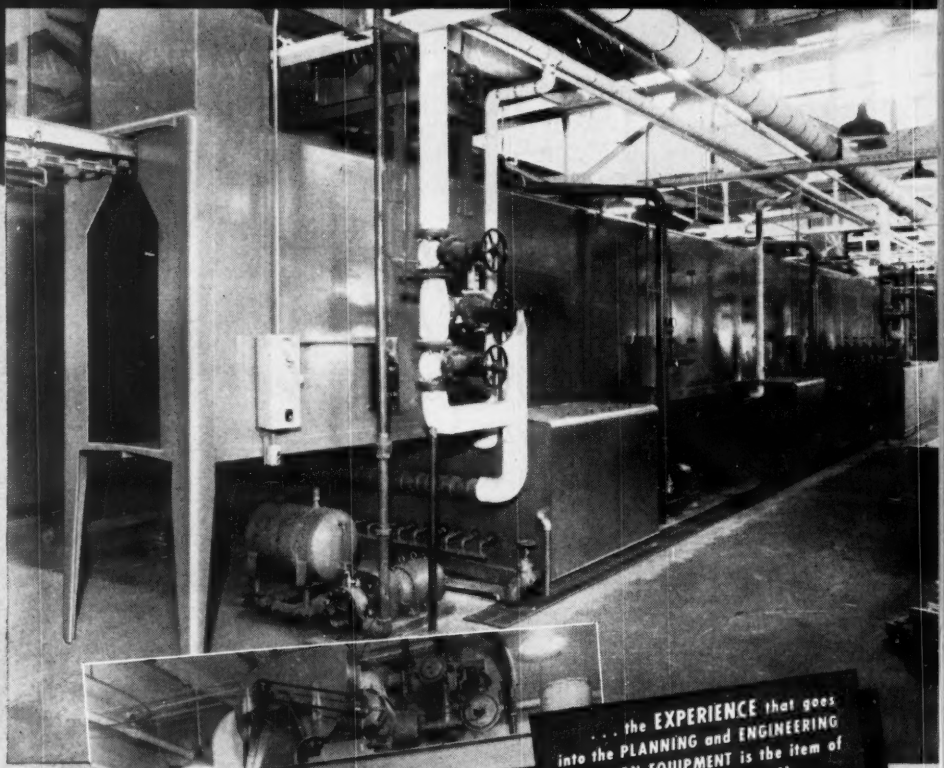

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At Right above is a general view of one of the two Complete Mahon Finishing Systems installed in the Buffalo Stamping Plant of American-Standard. The Metal Cleaning and Rust Proofing Machine and Dry-Off Oven are in the foreground. Directly above is a view of the exit end of the Five-Stage Mahon Metal Cleaning and Rust Proofing Machine.

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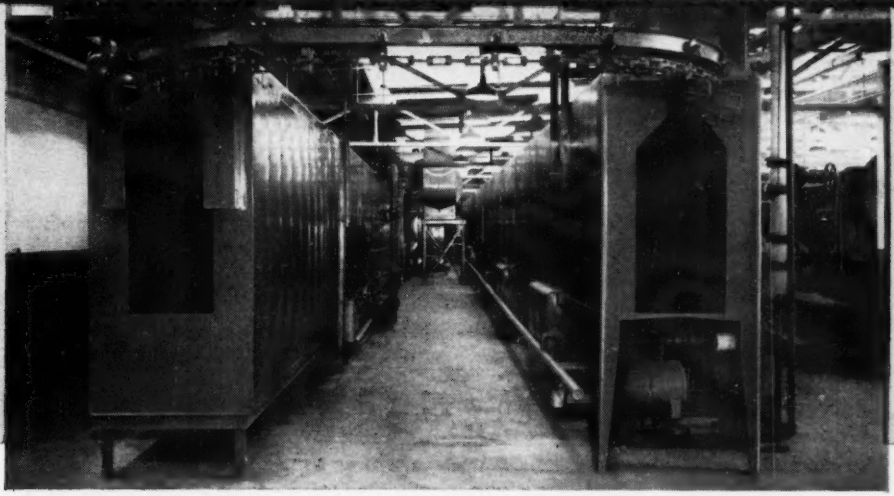

HEATER PANELS at AMERICAN-STANDARD are also FINISHED in MAHON EQUIPMENT!

Major elements of a second Complete Mahon Finishing System installed in the Buffalo Stamping Plant of American-Standard are illustrated here. This second system, like the other, is ultramodern in every respect. Parts are carried on a single conveyor which passes through a five-stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, two conventional Type Hydro-Filter Spray Booths which are staggered right and left hand, for spraying opposite sides, and finally through a Low Temperature Finish Drying Oven. This is another typical Mahon Finishing System designed to do a specific job efficiently and economically. If you have a finishing problem, or are contemplating new finishing equipment, you will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements . . . better qualified to do the all-important planning and engineering of equipment —which is the key to fine finishes at minimum cost. You will also find that Mahon equipment is built better for more economical operation over a longer period of time. Mahon's background history in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating and Spray Equipment for every conceivable product painted on a production basis. See Sweet's Plant Engineering File, or write for Catalog A-654.

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Electrostatic Spraying of Porcelain Enamel

By M. L. POUILLY
The Illinois Spray and Equipment Co.

FOR the past eight years, various manufacturers of electrostatic spray equipment have endeavored to obtain in the procelain enamel field, the high degree of efficiency enjoyed in the electrostatic spraying of synthetic paints.

In 1945 a paper was presented at the A. C. S. meetings by James B. Willis and published in the June, July, and August issues of "Finish." The paper was quite thorough and gave much valuable information. Unfortunately, this paper and those of R. E. Helmuth, "Finish," January, 1945, and C. Cleghorn, "Finish," October, 1946, did not have much impact on the industry.

It was about this time that a number of electrostatic units were installed, but for one reason or another they were all taken out with the exception of the installation at Clyde Porcelain Steel. This unit was used on their Veos tile line and has since been moved to Porcelain Enamel Products in Rehobath, Mass.

Since the time of Willis' paper, a great deal of work has been done by the manufacturers of high voltage equipment, spray equipment people, and the material suppliers.

In late 1950 the interest in electrostatic spraying of porcelain enamel was rejuvenated with promising results. Each successive test run gave new hope that the electrostatic spraying of porcelain enamel could be done successfully. This was principally due to three reasons.

The spray equipment manufacturers had introduced equipment which gave better atomization, along with more positive control of both fluid flow and atomization of air.

The frit manufacturers had introduced new materials and a determination to do everything possible to make the materials react as well as organic finishes.

A new approach was employed to the use of both the materials and equipment.

The spray equipment manufacturers had specially designed their equipment to perform for electrostatic spraying. The air cap has been so designed to give maximum atomization at extremely low air pressure. These air caps also had low forward velocity in order to hold the atomized particle in the electronic field as long as possible.

In order to further reduce the loss through overspray, the spray booth air velocity should be reduced to approximately 70 feet per minute.

The material itself has helped a great deal in this new program. The titanium enamel, with its high opacity and its ability to be milled to extreme fineness, has aided in

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achieving the unbelievable.

The success of the ground coat application by the electrostatic process has been encouraging. Further developments in ground coat frits and formulation has no doubt made possible the electrostatic spraying of ground coats.

At every test conducted either in ground coat or finish coat, it was found that the use of sodium nitrite improved both the atomization and the wrap around of the porcelain enamel slip. It is quite possible that the use of other electrolytes may give the same results but they were not investigated.

Last but not least, the electrostatic equipment itself has been modernized. It is so simplified that most plant engineers can install and service this equipment.

The high voltage equipment is available in both half-wave and full-wave with the voltage ranging from 80,000 to 140,000 volts, and milliamps ranging from 1 to 10 milliamps.

It has been our experience that use of the higher voltages provides a reserve of power set up by such equipment to overcome the heavier resistance loads to be used (such as laydown conveyor) and still function with desirable amperage.

With the introduction of the new electrostatic units a new approach was introduced. Prior to this the method of spraying (as explained by Willis in his paper) was either parallel or at an angle of 15 degrees to the work.

The new approach was the right angle method of spraying. The guns

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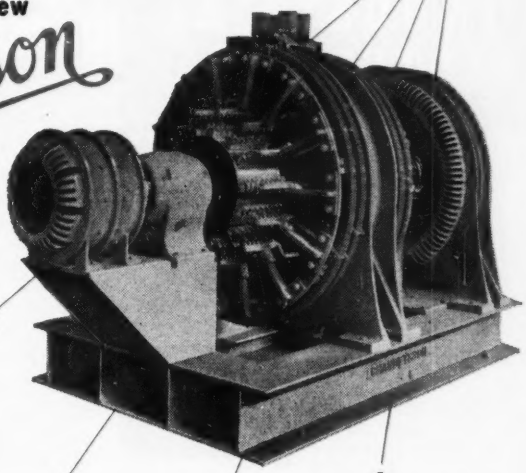

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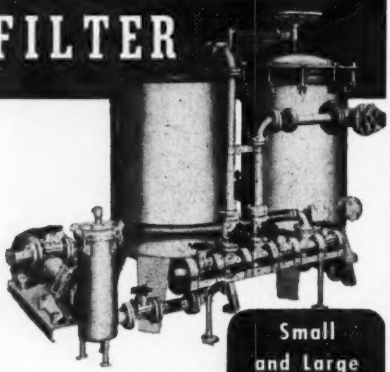

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were placed at right angles to the normal and spraying was done through charged grids.

This new method added the advantage of mechanical spraying to the electrostatic features.

The frit manufacturers with their characteristic willingness have been most helpful and contributed greatly to the success achieved to date.

The material formulations were left up to the frit manufacturer. Standard frits were used and several finesses were tried. The specific gravity and set were adjusted for the best results.

The materials used for the various tests have ranged from 2 per cent on 200 mesh screen to as fine as approximately 1 per cent on a 500 mesh screen estimated after a number of tests. It was agreed that for all purposes the ½ per cent on a 325 mesh screen was the best fineness. A specific gravity of 1.60 grams was decided upon during the test run, but while making a production run, it was felt that higher specific gravity could be used. It appears that 1.65 grams is satisfactory.

The set too, varies depending on the plant and ware to be sprayed. During our final test run it was believed that a pickup of 20 grams on a ground coated cylinder 6 inches high and 12 inches in circumference was the best, but during our first production runs the pickup of 37 grams worked very well.

The results of the first test were encouraging and improved with each successive test. At the most recent test, range parts such as door panels and range sides were sprayed in the finish coat with complete coating on the flanges, thus eliminat-

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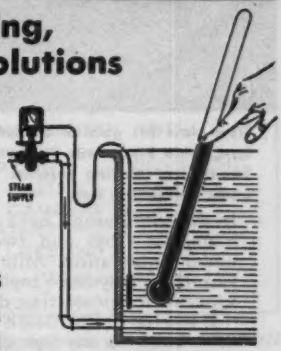

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ing the necessity of flange sprayers.

The success of the electrostatic spraying of porcelain enamel has been greater on the overhead type conveyor than on a laydown pin-type conveyor.

The orange peel was lessened to a great degree. The texture of some of the tests runs had a glass-like appearance.

The reflectance of the finished product was increased to such a degree that it is quite possible that a 40 per cent reduction in film thickness can be achieved, plus the saving effected by reduced overspray in booth. It was at first difficult to believe that there could be as much as a 50 per cent reduction in overspray but careful checks established that figure.

To further verify the economies of this process a number of square foot panels were sprayed with and without the high voltage potential. The panel using the high voltage had a deposition of 16.9 grams (dry weight), while the panel without the high voltage had only 7.9 grams (dry weight).

In another instance a square cabinet was sprayed in the finish coat. The cabinet was suspended from an overhead conveyor and sprayed on the front side using the high voltage. The dry weight on the front side was 15 grams while the right

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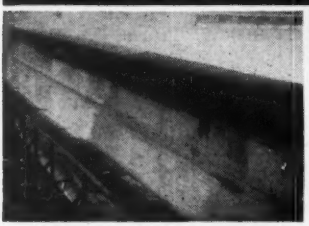
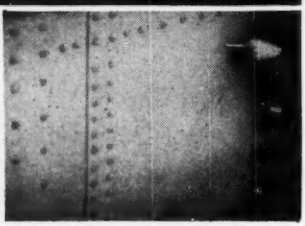
Rates Tops in Rust Resistance



Steel-plate lift gate of Emsworth Dam, Ohio River near Pittsburgh. Twenty-five coating systems are under continuing test.



Close-up of gate section treated with Vinsynite-Vinyl System. Note comparative absence of rust and corrosion.

In the continuing Corps of Engineers test shown above, Vinsynite-Vinyl and twenty-four other systems were under observation. After three years constant submersion the Vinsynite-Vinyl panel was voted outstandingly superior for protecting the metal.

If you have a corrosion problem, either in maintenance or in finishing any type of metal products, it will pay you to check the advantages of Vinsynite. Applied easily by brush, spray or dip, Vinsynite forms a perfect protective base for other paints. Let us send you specific test data and case histories to prove it!

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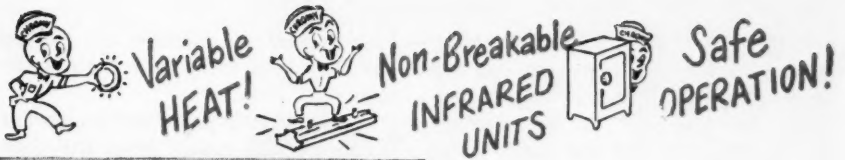

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and left side had a 3 gram coating, approximately 20 per cent coating on each side (right and left) totalling a 40 per cent saving of overspray which would normally have gone into the spray booth stack.

So far, you have only been given the good points of the electrostatic process. There are some requirements that are "musts":

1. Production runs should be large enough so as to minimize the necessity of gun changes. There is an optimum gun setting for each product but it is often possible to strike a compromise which, although reducing somewhat the efficiency of the process, will still be worth while.

2. The material control must be held to closer limits than conventional operation in the enamel plant, but it need not be extreme. The pickup and set should be worked out by plant tests and then maintained.

3. Gratifying procelain enamel efficiencies will result from the thorough training of operating crews. High level of control and maintenance will produce the best results.

4. Under the close scrutiny of recent tests, certain shortcomings of present equipment has been noted. These shortcomings will be covered thoroughly in other papers at this forum. It is beyond the province of this paper, but suffice it to say the improvements desired will benefit the electrostatic system, and make possible an even better performance.

Paper presented at 15th Annual Shop Practice Forum of the Porcelain Enamel Institute, Columbus, Ohio.

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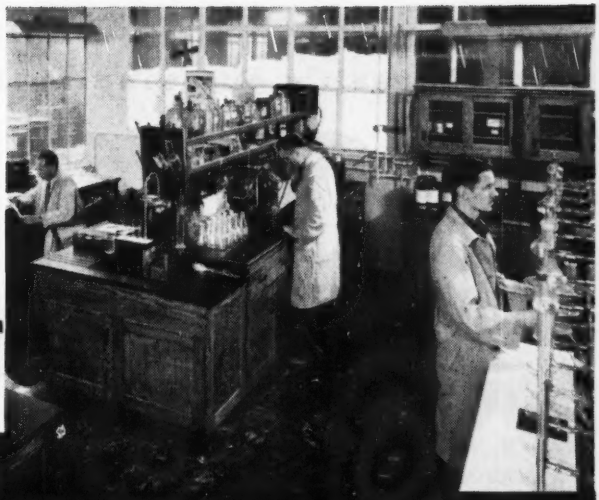
INDUSTRIAL CONTROLS. Catalog 8305, available from **Minneapolis-Honeywell Regulator Co.**, Wayne & Windrim Aves., Philadelphia 44, Pa., describes and illustrates non-indicating electric, electronic and pneumatic controllers for temperature, pressure and humidity, pneumatic and electric valves, switches and relays.

Included in the clearly printed, 80-page catalog are specifications, dimension drawings, application data and ordering information.

METALLIC RECTIFIER PLATING POWER SUPPLIERS. A new two-color booklet describing General Electric's complete line of manually-controlled and automatically-regulated metallic rectifier power supplies for electroplating and similar processes, has been announced as available from the **General Electric Company**, Schenectady 5, N. Y.

The fully-illustrated, 16-page publication, **GEC-970** describes the advantages, applications, and operation of the units and lists ratings, dimensions, and specifications.

Udylit



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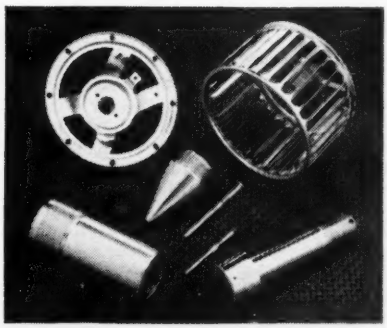
"Uniformity through laboratory control" is the key to Udylite supplies. Check materials used with BRY-CAD:

- Purity of Cadmium Ball Anodes—which Udylite originated—is an example of uniform quality. All anodes are spot-checked to maintain uniform size, content, weight.
- Udylite Ball Anode containers use anodes to the last ounce—and maintain maximum anode area.
- Cadmium Salt #153 contains all basic components of the bath. The chemicals used are the finest quality . . . mixed in EXACT proportions for best results.
- Brightener #53 used in the BRY-CAD Process is the result of many years of research and rigid laboratory control.



Call your Udylite technical man or write direct for complete lists of supplies. THE UDYLITE CORPORATION, DETROIT 11, MICH. *West of Rockies, L. H. Butcher Co., Los Angeles 23, Calif.*

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

TROUBLE-FREE PHOSPHATIZING
with Pennsalt's outstanding NEW

FOSBOND

A COMPLETE SYSTEM—EVEN INCLUDING A DYNAMIC MERCHANDISING PLAN!

If phosphatizing has been a headache in your plant, here's the news you've been waiting for! Now Pennsalt, long a leader in the metal processing field, offers everything you need for uniform, trouble-free phosphatizing —for better, longer-lasting finishes.

The Fosbond Process comprises various Pennsalt-made chemicals for all operations from cleaning, pickling, and phosphatizing, through rinsing. They have been engineered to provide an excellent pre-paint corrosion-resistant surface while offering simplified operation through an entire balanced cycle. Major finish manufacturers have approved Fosbond for use wherever phosphate coatings are required under organic finishes.

Sound Technical Assistance

To help Fosbond users initiate and maintain this Process, Pennsalt offers technical assistance—on a regular, scheduled basis—from qualified, experienced specialists. These men will get the Process running smoothly on your operation and help you keep it that way.

But that's not all! Fosbond has qualified for the famous *Good Housekeeping Guaranty Seal*, which has been incorporated into the colorful Fosbond emblem (see illustration). To gain wide public acceptance, this new merchandising symbol is being advertised in *Good Housekeeping*, *The Saturday Evening Post*, and other publications. Authorized manufacturers may affix this emblem to their Fosbonded products—thus gaining a valuable sales "extra."

Ask us to prove it!

So you can see actual Fosbond test panels for yourself, we will send you either Fosbond chemicals with which you can prepare panels, or panels prepared in our laboratories which you can then test. You be the judge! Just tell us 1) type metal to be phosphatized, 2) phosphate coating now used, 3) method of application, 4) organic finish used, 5) standards finish must meet.

Or, give us details about your operation, and we shall gladly answer questions about Fosbond as specifically as possible. Write: Metal Processing Dept., 462 Widener Bldg., Philadelphia 7, Pa.

PROCESS

A COMPLETE SET OF COMPOUNDS
for cleaning, pickling, phosphatizing, and rinsing. All from one reliable source—Pennsalt

APPLIED IN A BALANCED CYCLE...
tailor-made by Pennsalt engineers to fit your operations and equipment

SERVICED AND MAINTAINED...
by experienced field servicemen on a regular, scheduled basis

ADVERTISED AND MERCHANDISED
to help pre-sell your quality finish to wholesalers, dealers, and consumers

At Pennsalt's famous Whitemarsh Research Laboratories, where Fosbond was developed, there are unusually fine testing facilities at the disposal of manufacturers using the Process.

FOSBOND IS A PENNSALT TRADEMARK

A better start for your finish

Pennsalt Chemicals

PENNSYLVANIA SALT MANUFACTURING COMPANY

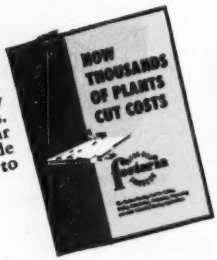
ANYTHING THAT CAN BE BAKED CAN BE BAKED BETTER IN A FOSTORIA OVEN

—ANY SHAPE
—ANY MATERIAL
—ANY COLOR

Big dividends can be yours by modernizing with Fostoria — America's Finest Engineered Ovens. Case history experience of over 7,000 installations proves (1) no other oven approaches Fostoria results in the high percentage of energy *usefully* utilized; (2) no other oven compares with Fostoria in production per square foot of floor space; (3) no other oven can match the quality of output or the low "per-piece-cost" of the high efficiency Fostoria Oven. For any product — any shape — any material — any color — a better baking job can be done faster and in less space with the production-proved, modern Fostoria oven. Write now for complete facts.

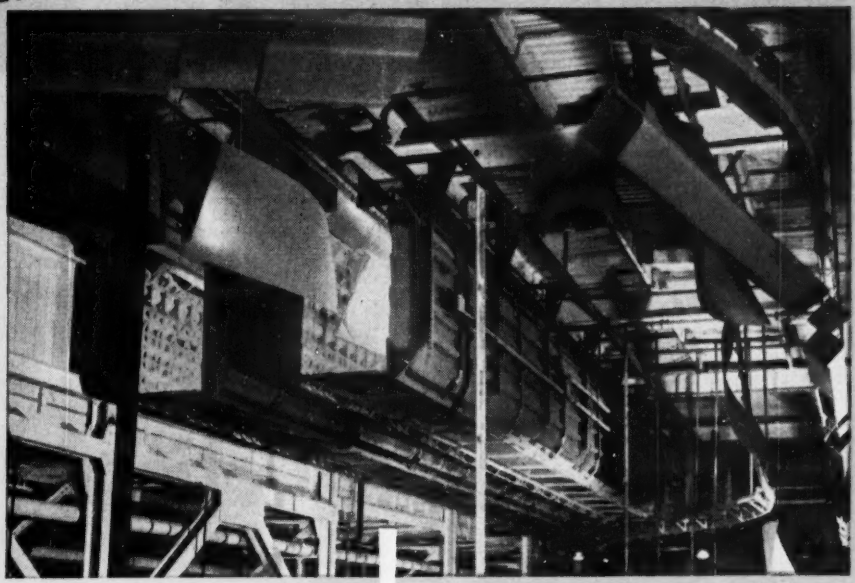
WRITE FOR CATALOG

WRITE for this brochure of technical facts on Infra-red and case histories of many Fostoria oven installations. Tell us about your particular problem and we will include data directly applicable to your operations.



Throughout industry, new high standards of efficiency are being set by utilization of modern Fostoria oven equipment. A Fostoria representative will gladly analyze your production needs and submit recommendations for your consideration.

MOST EFFICIENT OF ALL INDUSTRIAL OVENS



A TYPICAL EXAMPLE OF ADVANTAGES PROVED IN OVER 7,000 PLANTS

White Motor Co., Cleveland, Ohio, uses Fostoria Ovens practically 100%. Photo shows two 75-ft. ceiling suspended ovens for finish baking approximately 8,000 parts of various shapes, sizes and colors. Baking time is 5 minutes compared to 20 minutes with other systems. Quality is better controlled. Production economies permit amortization of entire oven investment in less than 2 years.

INFRA-RED Fostoria OVENS

Send for Complete Facts

THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO, Dept. C

Please send information on Infra-red ovens for

_____

Name_____

Company_____

Street_____

City_____ State_____

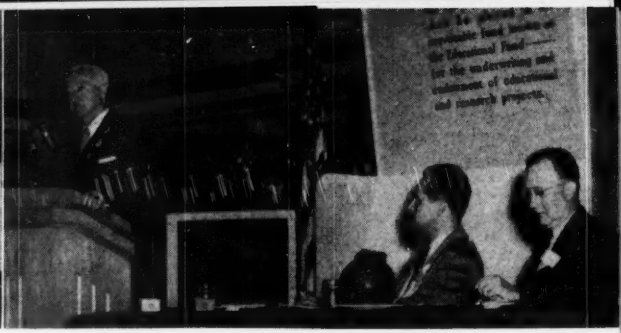


Fig. 1—(Above, left) Gustave H. Wescott, DuPont Company, president of the Federation of Paint and Varnish Production Clubs, presented the "President's Report" on the activities of the organization during the past year, at the opening session of the 31st Annual Meeting held in Atlantic City, New Jersey. Eugene H. Ott, Ferbert-Schorndorfer Co., chairman of the Program Committee, is at right.

Fig. 2—(Above, right) Joseph F. Battley, president of the National Paint, Varnish and Lacquer Association, addressed the opening session of the Annual Meeting of the Federation of Paint and Varnish Production Clubs. Pointing out that paint sales were at the rate of 1½ billion dollars annually, General Battley stressed the fact that in the period of more competitive selling which is ahead, it is imperative that quality of product be maintained. Seated (right) Chairman Ott and President Wescott.

Random Views of Federation Meeting and Paint Industries' Show

Reported by
EZRA A. BLOUNT

Fig. 3—Harold E. Collins, Sales Manager, Pigment Div., Metals Disintegrating Company, Inc., (left background of this photo) discusses metal pigments with a Paint Industries' Show visitor.

Fig. 4—M. A. Glaser, Midland Industrial Finishes Company, chairman of the Federation Educational Committee, reported on progress of the Federation's effort to interest students in careers in the paint industry. In the right background of the photo can be seen some exhibits used in this work of arousing interest in the paint field. W. J. Greco, assistant technical director, Socony Paint Products Company, session chairman, is at right.

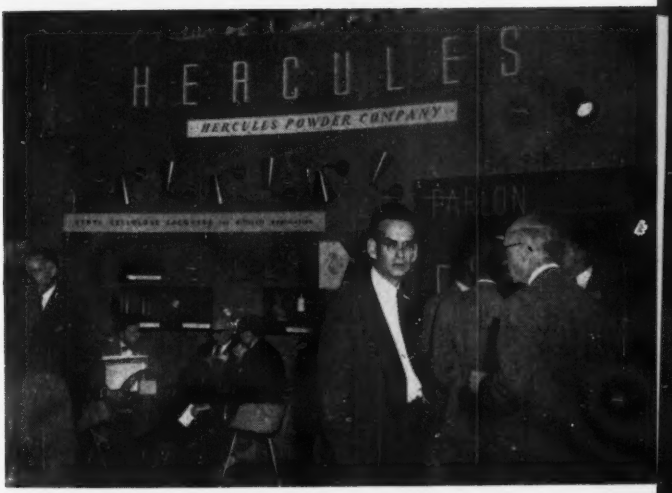


Fig. 5 — The Hercules Powder Company exhibit featured ethyl cellulose lacquers and Parlon for maintenance paints.

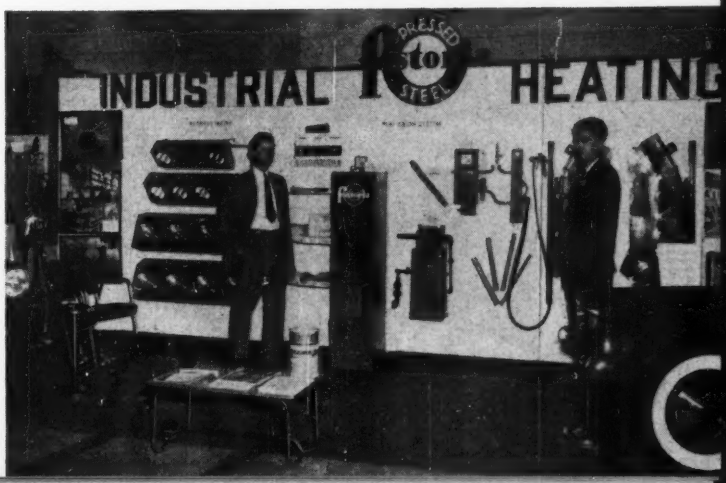


Fig. 6—The exhibit of the Fostoria Pressed Steel Corporation included a display of equipment for infrared baking of paint, and equipment for heating paint for hot spray application. At left is Richard Estabrook, manager, Paint Heater Division, and right, J. H. Wade, service engineer.

Fig. 7—A number of instruments for measuring various properties of paint and paint films were exhibited by Gardner Laboratory, Inc.

Fig. 8—James A. Bede, president of Bede Products, Inc., gave demonstrations of airless spray painting in the Bede Products booth. The exhibit featured the Bede Airless Spray Unit (center of photo). At right is Joseph A. Sanchez, sales manager.

Fig. 9 — Mr. Bede also demonstrated some of the characteristics of airless spray painting by spraying paint into a cardboard box.

Fig. 10—(Above, left) Dr. Wouter Bosch, North Dakota Agricultural College, reported on the use of a protectometer in evaluating anti-corrosive primers which were subjected to salt spray.

Fig. 11—(Above, right) Paul O. Blackmore, Interchemical Corporation, chairman of the Research Committee and a past president of the Federation, called on the members for new research ideas. F. E. Petke, session chairman, is seated at right in the photo.

Fig. 12—Herbert R. Simonds (left), vice president of Special Equipment Corporation, and C. William Cleworth, treasurer, were on hand to greet visitors to the company's display of paint heating equipment at the Paint Industries' Show.

Fig. 13—(Below) A partial view of the Speakers' Table at the Annual Banquet of the Federation. Near the speaker's stand, C. Homer Flynn, executive secretary of the Federation, converses with G. M. Wescott, Federation past president. Seated (left to right) are: Mrs. Flynn; Ernest T. Trigg, honorary chairman, executive committee, National Paint, Varnish & Lacquer Association; Mrs. Kienle; Dr. Roy H. Kienle, director of applied research, Calco Chemical Div., American Cyanamid Co., keynote speaker; Mrs. Elm; Dr. Adolph C. Elm, research supervisor, The New Jersey Zinc Company, who delivered The Mattiello Lecture; Mrs. Overmyer; Dr. Calvin J. Overmyer, vice president, Elliott Paint & Varnish Company, Federation president; Mrs. Westcott; Newell P. Beckwith, Rinshed-Mason Co., Federation president-elect; and Mrs. Beckwith.

(All photos by PRODUCTS FINISHING)

Finishing Clinic

(For Finishing Problems)

Question. *It is with interest that we have been following your Finishing Clinic in* PRODUCTS FINISHING.

At the present time we are having trouble in making paint adhere to surfaces on large castings processed by us. Our trouble is that we have items that are appreciable in size and in weight so that ordinary handling of them isn't in the picture.

The finish must be such that it will withstand extreme differences in temperature. The equipment usually is in a cold room of 40 to 50 degrees and then when it is cleaned it is subjected to a high detergent and steam temperature. The fact that meat juices also are constantly present and that severe shock through bumps by shovels and trucks are not unusual make the problem still more interesting.

Any suggestions that you might have to offer would be appreciated.

O. S.

Answer. Yours is not an easy problem. One difficulty which may not have been considered is that the castings are porous and contain absorbed gases which expand at elevated temperatures, flaking the finish on the castings. The abrasive and chemical service conditions which you point out in your letter do not make the job any easier. Companies processing castings of reasonable size have found it profitable to impregnate the castings with either sodium silicate, vinyl resin compounds, or other materials in vacuum chambers. Perhaps your castings are too large to be processed in vacuum chambers, but it may be possible that some attempt to impregnate the castings will reduce the porosity and subsequent finish failure. An article of interest on this subject, "Vacuum Impregnation of Castings Forms Base for High Quality Paint Finish," appeared in the April issue of PRODUCTS FINISHING.

No doubt the castings receive some type of phosphate treatment prior to application of the paint finish. Treatments of the phosphate or chromate type are used generally in connection with the paint finishing of metal products. The castings may be magnesium, aluminum, iron, or brass; there are chemical treatments which will produce an inert film on the surface which

improves paint adherence as well as corrosion resistance.

Relative to the service conditions of severe shock resulting from bumps by shovels and trucks, perhaps you can design your product with stainless steel or aluminum scuff plates to cover the more vulnerable areas.

Two developments in the paint industry may offer promise in the solution of your problem. One development is the technique of spraying lacquer and enamel finishes at an elevated temperature. The other development is the use of Epon resins in enamel finishes to secure improved resistance to abrasion and high temperature.

If your castings are not too large you might like to consider the possibility of electroplating nickel or tin on the castings subject to the most severe wear and corrosion.

——— *fc* ———

Question. *We are interested in specifying a finish such as has been applied to numerous articles of so-called wrought iron. It is our understanding that some of these finishes have been of the black oxide type while others are a sprayed flat black enamel.*

Our proposed product, manufactured of steel components, is to be used outdoors but would ordinarily be taken indoors during the winter months. Its exposure in most regions would thus be limited to the moisture conditions of the average garden in the summer months. While cost is naturally important, we wish to specify a finish which will maintain its appearance and prevent rusting for several seasons of normal use.

Your recommendations as to the proper surface treatment and subsequent finishing would be appreciated.

H. W.

Answer. For information concerning black finishes applied directly to iron products you might like to contact the following companies for specific recommendations in the case of each product as to its corrosion resistance under these specialized conditions. (Names furnished.)

If the service conditions to which your products will be exposed make paint coatings feasible, various black enamel coatings of the air-drying or the baking type are, of course, available. For information regarding finishes of this type we should like to recommend you to the following companies: (Names furnished.)

If you would like to consider another type of finish, different from the two previously suggested, you might find it desirable to copper plate your steel products and then blacken the copper plated surface by treatment in a sulfide solution. We are referring you to a source for blackening solutions.

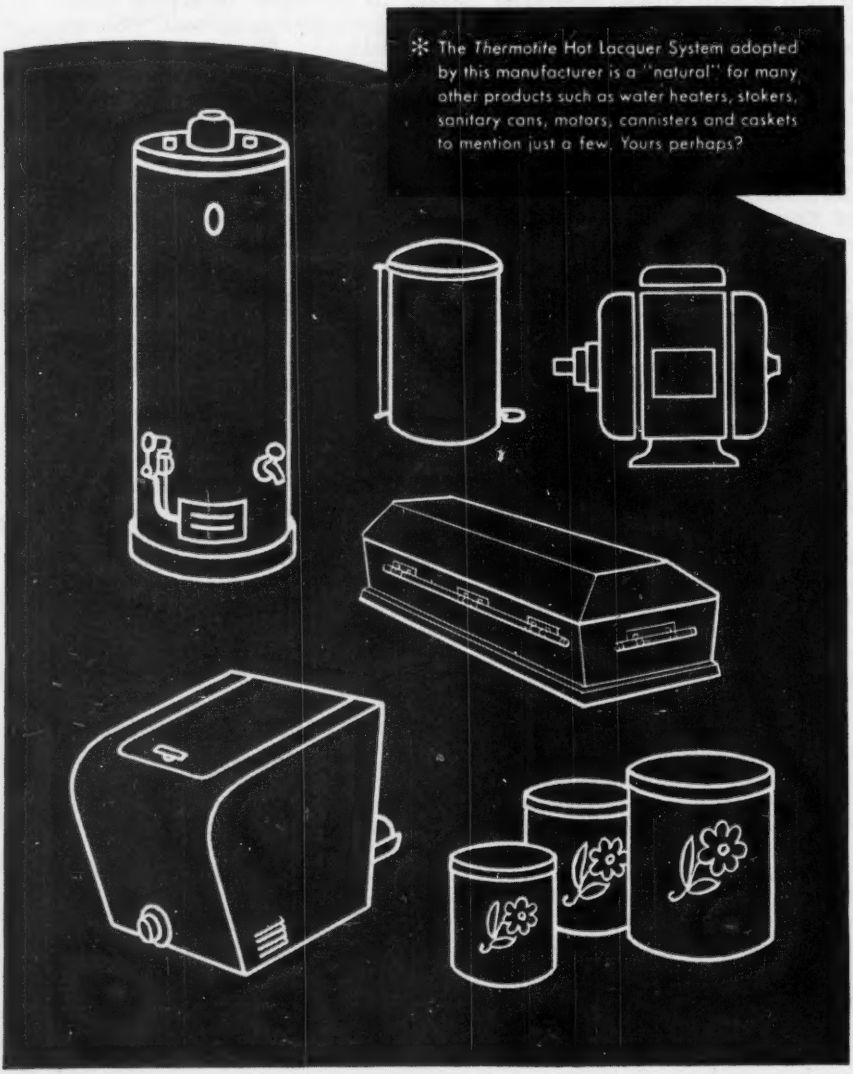
Black finishes on steel products may be produced by a number of processes or a combination of processes, and the proper process to use is usually selected on the basis of appearance desired, service conditions, and cost considerations.

DO YOU HAVE A FINISHING PROBLEM?

The editorial staff of PRODUCTS FINISHING is prepared to aid you in the solution of your problem. There is no charge for this service.

Lowe Brothers *THERMOTITE*

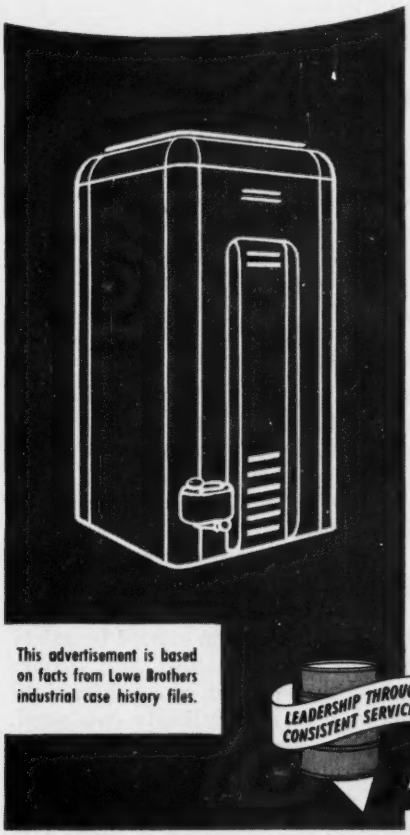
Eliminates 2 handling operations


* The *Thermotite* Hot Lacquer System adopted by this manufacturer is a "natural" for many other products such as water heaters, stokers, sanitary cans, motors, cannisters and caskets to mention just a few. Yours perhaps?

solves production bottleneck

by cutting drying time 600%

This manufacturer of gas and oil furnaces* was using a finishing system which produced highly satisfactory results from every standpoint of gloss, adhesion, appearance and durability. It was necessary, however, to move finished parts from the line to a storage place for an hour's drying time before handling and packing—a costly production bottleneck. A Lowe Brothers "Finishing Specialist" recommended *Thermotite* as a means to eliminate this bottleneck yet retain all of the desirable characteristics of the finish used previously.



This advertisement is based on facts from Lowe Brothers industrial case history files.

NOW, with *Thermotite*, parts are dry, ready for packing within 9 minutes! Packing is done just as pieces leave the production line. No extra handling, no moving, no special storage, no costly bottleneck—just big savings!

BUT MOST IMPORTANT, the "hot application" method recommended by Lowe Brothers "Finishing Specialist" produces a finish with every desirable characteristic of the former system—good build, excellent adhesion, one coat application and a tough, durable high gloss film, free of marring!

MANY manufacturers have found it most profitable to have a Lowe Brothers "Finishing Specialist" check their finishing operations for possible improvement based upon thorough knowledge of the latest in modern systems and materials. How about you? No obligation—write today!

THE LOWE BROTHERS COMPANY • **Dayton 2, Ohio**
Industrial Division

LEADERSHIP THROUGH CONSISTENT SERVICE

Lowe Brothers
FINISHES FOR INDUSTRY
since 1870

New Priming

By JOHN STARR

BY means of a new priming technique, corrosion-inhibiting finishes are being applied to various metallic surfaces with unusually high bond strength at Consolidated Vultee Aircraft Corporation of San Diego, California.

This technique involves the preliminary use of a thermosetting wash primer, over which a vinyl zinc chromate seal primer or cover coat can be applied.

Aluminum aircraft parts are readied for the priming operations by anodizing, alodizing, and chromatizing in a more or less conventional manner. Magnesium parts are either anodized or dichromated while steel components may be electroplated, sand blasted, or pickled — depending on their respective compositions and applications.

The wash primer is prepared by slowly adding one part by volume of an acid catalyst to four parts by volume of a thoroughly mixed thermosetting resin component, and stirring until the acid is completely dispersed in the resin. Then isopropyl alcohol is used to thin the catalyzed resin (about 1 part by volume being required to thin one or two parts resin in ordinary circumstances). When properly thinned, the wash primer can be applied with pneumatic spray equipment at temperatures of 40 to 90 deg. F., if the relative humidity does not exceed 90 per cent.

Special precautions are taken in preparing and labeling mixed batches of wash primer, because the thermosetting resin cannot be safely applied or replenished with freshly mixed materials in more than eight hours after it is initially catalyzed.

Spray equipment is cleaned with an alkaline solution prior to use of the wash primer, and deposition surfaces are inspected to make sure

they are perfectly dry. Then the wash primer is applied so that it will become a protective film with a maximum thickness of 0.0005 inch after one hour of drying time at room temperature (Fig. 1).

The vinyl primer must be applied over the wash primer as soon as possible after the latter is dry, because small quantities of moisture (due to fog, rain or high humidity) can readily permeate the wash primer if it is not shielded with a secondary medium; and, the wash primer will begin to oxidize and lose bond strength about five hours after it is dry, if it is continuously exposed to open air.

Where a vinyl primer cannot be applied within five hours, or prior to the exposure of the wash primer to moisture, parts must be stripped and completely retreated.

The vinyl primer is normally applied with spray equipment, like the wash primer, and thereafter parts will dry enough at room temperature to be handled in 30 minutes.

Dry film thickness of the vinyl primer coat may range from 0.0007 to 0.001 inch; and, if the coating is scratched or otherwise damaged, repairs are usually made as follows (Fig. 2):

1. Damaged areas are faired with #280 (or finer) wet or dry sandpaper.
2. Faired areas are carefully cleaned with cheesecloth soaked in naphtha.
3. Cleaned areas are brush-anodized, wash-primed, and so on, as necessary.
4. Vinyl primer is applied over the repair areas and over about 1 inch of the previously applied primer film adjacent thereto.

Parts thus primed and/or repaired are respectively date stamped so that they can be inspected in not less than 24 hours after the initial drying interval.

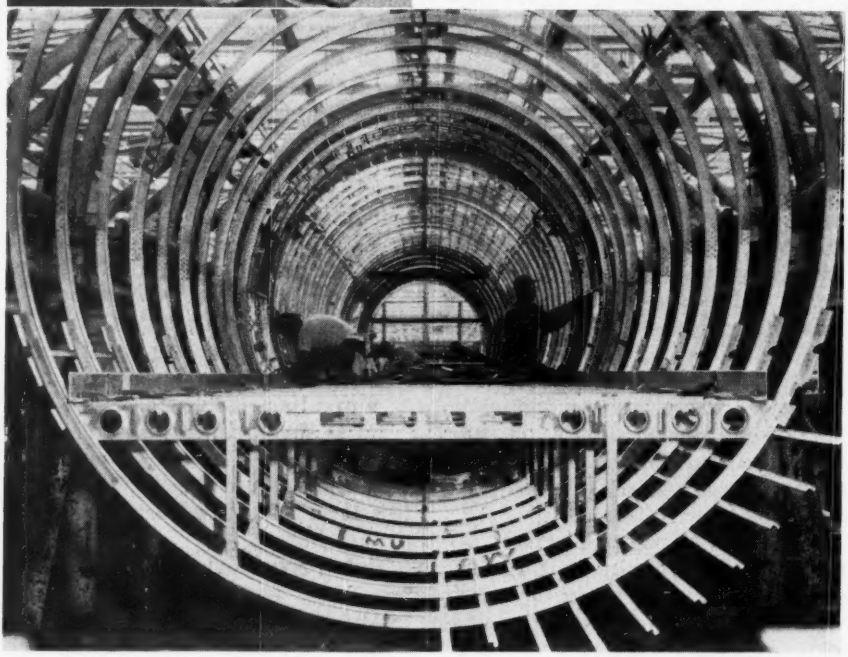
Batch specimens of primed parts are knife tested to ascertain the qualities of applied coating materials; remaining components are

tested non destructively by using cellulose tape to determine whether the primer coatings meet minimum requirements with reference to adhesion.

Following inspection operations, primed parts are assembled and then enameled where decorative or special functional effects are required.

●

Fig. 1 (left)—Consolidated Vultee's new priming technique involves the use of pneumatic spray equipment in a more or less conventional manner. Fig. 2 (below)—Scratches and other defects due to handling and assembly operations are repaired by using sandpaper, brushes, and so on, to reprocess portion of the primed metal parts of Consolidated Vultee aircraft in order to eliminate the possibility of structural defects due to corrosion when the planes are in operation.
(Photos courtesy Consolidated Vultee Aircraft Corp., San Diego, Calif.)



FREE!

Guide to industrial uses of Sundstrand Air Sanders

How to save time and money on maintenance, production

See how leading manufacturers use *Straight-Line Action* Sundstrand Air Sanders for all types of finishing operations on wood, metal, or plastics. Find out how you can duplicate hand sanding with this pioneer air sander which moves the pads back and forth instead of in a circle . . . leaves no swirls, no scratches, no pressure marks. Learn how you can use faster-cutting, coarser grit paper to reduce sanding time . . . how one machine sands wet or dry . . . on flat or curved surfaces . . . even along side moldings and in tight corners. Here are just a few of the uses pictured:

- **Sanding filler on castings**
- **Preparing metal for priming and final finish**
- **Sanding plastics**
- **Wet sanding base coat on wallboard**
- **De-burring rivet holes on aircraft**
- **Polishing dies**
- **Refinishing boats, desks, work benches**
- **Sanding and rubbing fine furniture**

Act now! Contact your local supplier or write for Bulletin PF-12.

SUNDSTRAND

SUNDSTRAND AIR SANDERS

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC DIVISION, ROCKFORD, ILLINOIS

Practical Applications of modern products

How To Cut Spiral-Wound Abrasive Drum Covers

By WILLIAM T. CONWAY
Behr-Manning Corporation, Troy N. Y.

SEVERAL types of drum grinders that require spirally-wound coated abrasive drum covers are being used in the metal working industry for surface finishing flat wide sheets, and strip stock. When such drum covers are worn and ready for replacement, the new covers are commonly cut from rolled stock and installed by factory maintenance personnel or by the machine operator. Improper cutting of the cover often leads to waste or malfunctioning of the machine. By following the procedures outlined below, a minimum of coated abrasive stock will be lost and the new covers will fit their drums accurately.

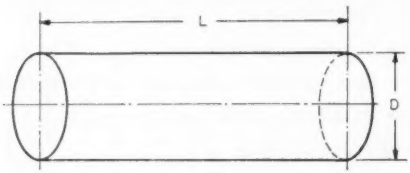


Fig. 1

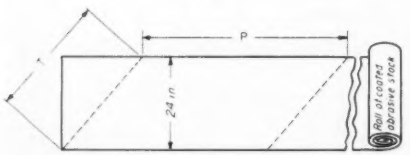


Fig. 2

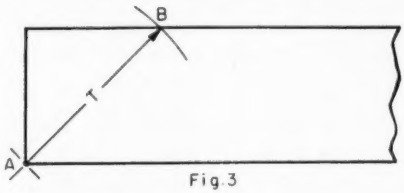


Fig. 3

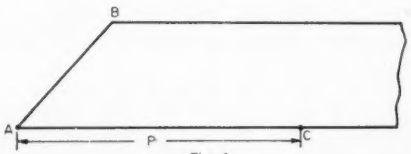


Fig. 4

Two separate procedures are offered because two basic types of spirally-wound drum machines are in use. On one type of machine the coated abrasive cover is butt-wrapped on a smooth drum. On the second type of machine, the abrasive cover is overlapped along the spiral. The drum on this type of machine has a spiral groove on its surface to allow for the double thickness of coated abrasive. On both types of machines the abrasive cover is clamped at both ends of the drum with a suitable take-up device to keep the cover snug on the drum surface.

Practically all of these drum sanders are designed to use 24-inch wide rolls of coated abrasive, either paper-, fiber-, or clothbacked, or with combinations of these materials. Because the diameter and length of the drums vary according to manufacturer, the abrasive covers must be cut to fit the individual machine. Therefore, measurements must be made on the spot or from spe-

cifications written for the particular model involved. Basic drum dimensions are length and diameter, as in Fig. 1, and must be measured in inches. Basic dimensions for the coated abrasive cover are the length of the taper (T) and

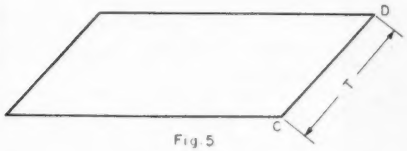


Fig. 5

the length of the cover (P), in Fig. 2; both dimensions will be determined in inches.

Butt-Wrapped Spiral Covers (all dimensions in inches)

(a) Calculate area of drum (A_D) to be covered.

AD = length of drum (L) x diameter of drum (D) x 3.14

(b) Calculate length of abrasive cover (P)

$$P = \frac{\text{area of drum (AD)}}{\text{width of coated abrasive (24 inches)}}$$

(c) Calculate length of angle cut or taper (T)

T = diameter of drum (D) x 3.14

(d) Knowing the length of angle cut (T), scribe an arc with a string or rule of radius T from one corner (A) of the coated abrasive until it intersects the opposite edge (B) of the coated abrasive as shown in Fig. 3. Cut the cover* on a straight line (AB) between the two points.

(e) Referring to Fig. 4, measure off the calculated length of the cover (P) along the edge of the coated abrasive (AC).

(f) Repeat (d) scribing arc of radius T from point C on Fig. 5 to locate point D. Cut straight line CD.

After initial cover has been cut from a roll of coated abrasive, each cover

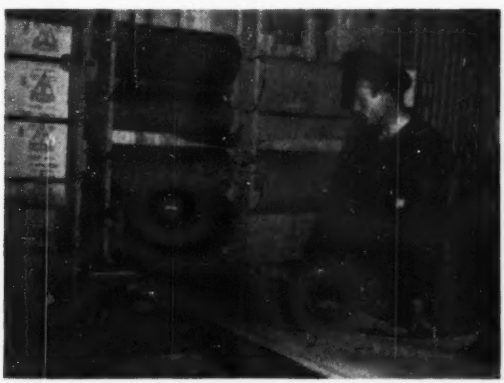


Fig. 6—Rolls of coated abrasive stock for a drum sander are usually kept on vertical rack near the machine. No stock should be wasted after a roll is started with first taper cut as shown because successive cuts will leave the roll with proper leading angle.

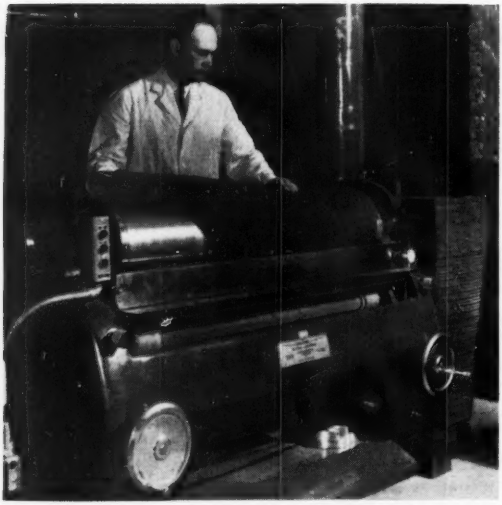


Fig. 7 — Coated abrasive cover being spiral wound onto the cast iron roll. Note that the seams are butted together and are not overlapped.

after that is cut by merely repeating steps (e) and (f).

Overlapped Spiral Covers

(a) Calculate theoretical circumference of drum (C_T) and length of angle cut or taper (T).

C_T = diameter of drum (D) x 3.14 + width of overlap (measured parallel to edge of drum)

also, $T = C_T$

(b) Calculate area of drum (A_D) to be covered.

A_D = length of drum (L) x theoretical circumference (C_T)

(c) Calculate length of abrasive cover (P)

$P = \frac{\text{area of drum } (A_D)}{\text{width of coated abrasive (24 inches)}}$

(d) Knowing T and P, follow steps (d), (e) and (f) given previously for Butt-Wrapped covers.

*Note: Always cut covers from the back side of the coated abrasive. This results in less wear on edge of cutting knife.

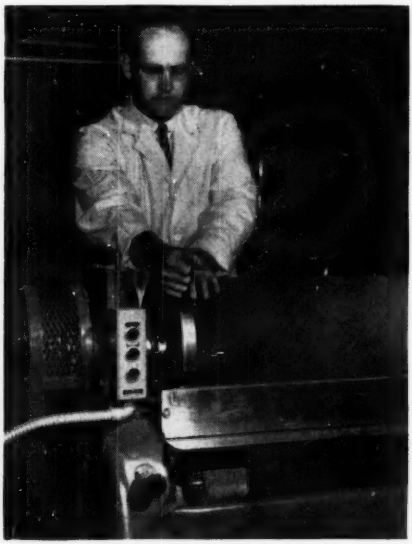


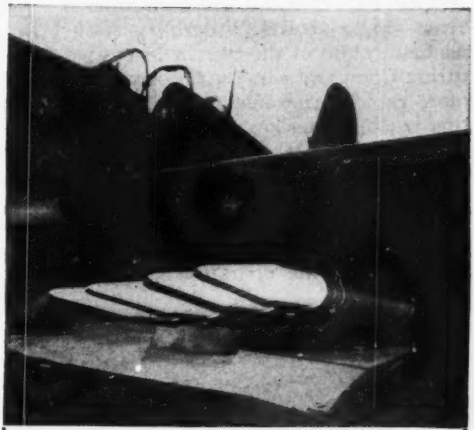
Fig. 8—Four clamps on each end of the grinding roll hold the coated abrasive cover in place. A rubber faced steel roll, directly under the grinding roll, backs up the work being ground and maintains the accuracy of its finished thickness.

AMERICAN CHEMICAL PAINT COMPANY
AMBLER CHEMICALS ACP PROCESSES PENNA.

Technical Service Data Sheet
Subject: IMPROVING PAINT ADHESION ON STEEL WITH GRANODINE®

INTRODUCTION:

"Granodine" is a zinc phosphate coating chemical which improves paint adhesion on steel, iron and zinc surfaces. In the easily applied Granodizing process, a non-metallic crystalline coating is formed on the treated metal. This bond holds and protects the paint finish and thus preserves the metal underneath. Parts can be either Spray Granodized in an industrial power washing machine, Dip Granodized in tanks, or Brush Granodized with hand equipment.



Official Dept. of Defense Photograph

An F4U Corsair with the Navy's new aircraft anti-tank rocket, the "RAM". A Grade I zinc phosphate finish (JAN-C-490) protects the entire external surface of this rocket and provides a durable bond for the specification paint finish.

"GRANODINE" MEETS SERVICE SPECIFICATIONS:

The protective "Granodine" finish meets Grade I of JAN-C-490 and equivalent requirements of:

JAN-F-495 U.S.A. 57-0-2C, Type II, Class C U.S.A. 51-70-1, Finish 22.02, Class C.

MANY APPLICATIONS:

Automobile bodies and sheet metal parts, refrigerators, washing machines, cabinets, etc.; projectiles, rockets, bombs, tanks, trucks, jeeps, containers for small arms, cartridge tanks, 5-gallon gasoline containers, vehicular sheet metal, steel drums and, in general, products constructed of cold-rolled steel in large and continuous production are typical of the many products whose paint finish is protected by "Granodine" zinc phosphate coating.

CHEMICALS ACP PROCESSES

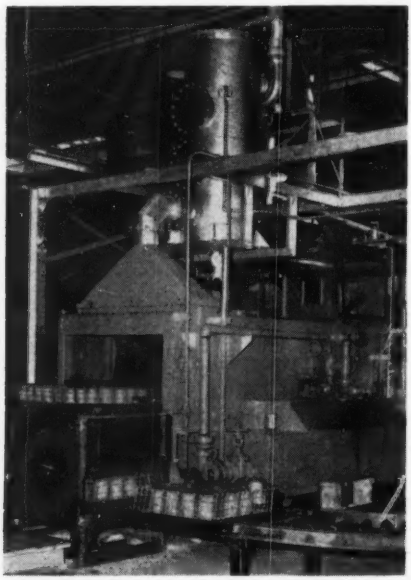
WRITE FOR FURTHER INFORMATION ON "GRANODINE" AND YOUR OWN METAL PROTECTION PROBLEMS.

CHEMICALS ACP PROCESSES

Scale Removed From Brass Shells in Three-Stage Pickling Machine

THE removal of scale and other surface imperfections from in-process brass shells at the Waterbury, Connecticut, plant of the Scovill Manufacturing Company is being accomplished more rapidly and efficiently in a pickling machine, designed for the purpose by the Industrial Washing Machine Corporation of Matawan, New Jersey

In the process of manufacture, brass strips are blanked into discs which are formed into a cup shape by a cupping press. After this operation the brass cups must be annealed before they can be redrawn. The annealing process leaves scale and discoloration on the shell and the pickling machine is used to remove it.



Brass shells in wire mesh baskets move to the entrance of the pickling machine on a roller conveyor.

A live roller conveyor moves the 28 inch square wire mesh baskets containing the shells through three sections of "over and under" sprays. The first set of sprays contains a solution of sulfuric acid, the second two are rinses. This bath removes the discoloration without affecting the shell itself.

Although the Industrial Washing Machine Corporation designed Scovill's pickling machine to have a high capacity—15 square feet of work surface per minute—it is quite compact, being only 25 feet long, 10 feet wide and 6½ feet high. It is made of type 316 stainless steel which has been found to have a high resistance against the corrosive effects of the sulfuric acid.

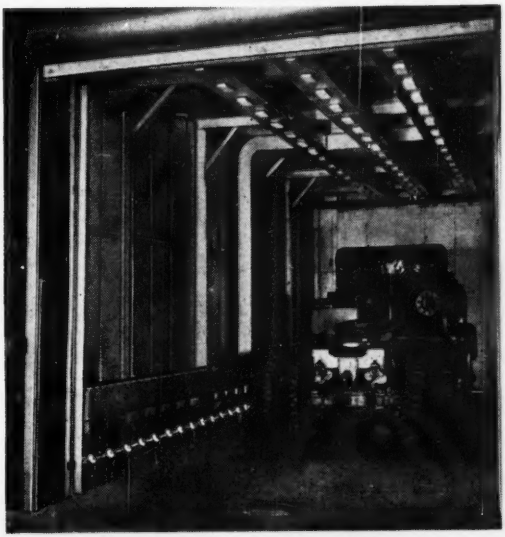
PORTABLE LUCITE PLATING BARREL. Several clearly printed, well illustrated, data sheets listing and describing the component parts of the Portable Lucite Plating Barrel are available from **George A. Stutz Mfg. Co.**, 1647 Carroll Ave., Chicago 12, Ill. One of the sheets illustrates the load/unload stand for the Stutz Portable Plating Barrel.

SUMMARY LIST OF THE IRIDITE PROCESSES. A sheet listing the Iridite products for corrosion resistance, paint base preparation and decorative finishing of various metals is available from **Allied Research Products, Inc.**, 4004-06 E. Monument St., Baltimore 5, Md. The degrees of corrosion resistance are not shown because this characteristic varies with the Iridite used, the type of metal and the application method. Information on corrosion protection under specific conditions is available upon request.

Do you know..

BURDETT Gas Fired *Radiant Heat* SYSTEMS

— dry final paint coat on Diamond T Military Trucks with gas in tank, tires on wheels and upholstery in cab.



• Truck in tunnel type batch style Burdett Oven. Oven measures 14'4" x 17' x 36'8".

That's right —

large Army, Navy and Air Corps trucks and tractor sections of semi-trailers are driven in and out of Burdett "Radiant Heat" Ovens under their own power. Safe? Certainly! And the fastest and most economical dry as well. Paint is synthetic enamel, which is thoroughly dried on *all* parts of these trucks, including the extra heavy channels and 5th wheel section in 20 minutes at 180° F.

The tougher competition gets—the more you will profit with a Burdett System. No obligations for recommendations—send us your plant and production data now!

B U R D E T T
MANUFACTURING COMPANY

3447 WEST MADISON ST. • CHICAGO 24, ILLINOIS

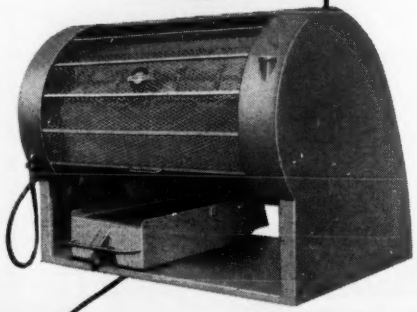
Also Manufacturers of "Radiant Heat" Systems, Ovens, Heaters, Air Make-Up Units, Spray Booths and Washers.

TUMBLE

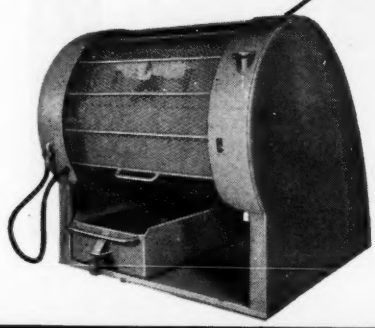
Come to GRAV-I-FLO FINISH for ALL your tumbling needs!

You can get complete equipment and supplies for faster, better tumbling at Grav-i-Flo. This authoritative tumbling source can furnish you, from its years of experience, the correct answer to any tumbling problem.

Larger capacity machines take 31% to 80% more work-load in same floor space. Improved cutting materials shorten cutting cycle by 15% to 25%. Grav-i-Flo installations substantially reduce capital investment, floor space, and production time!



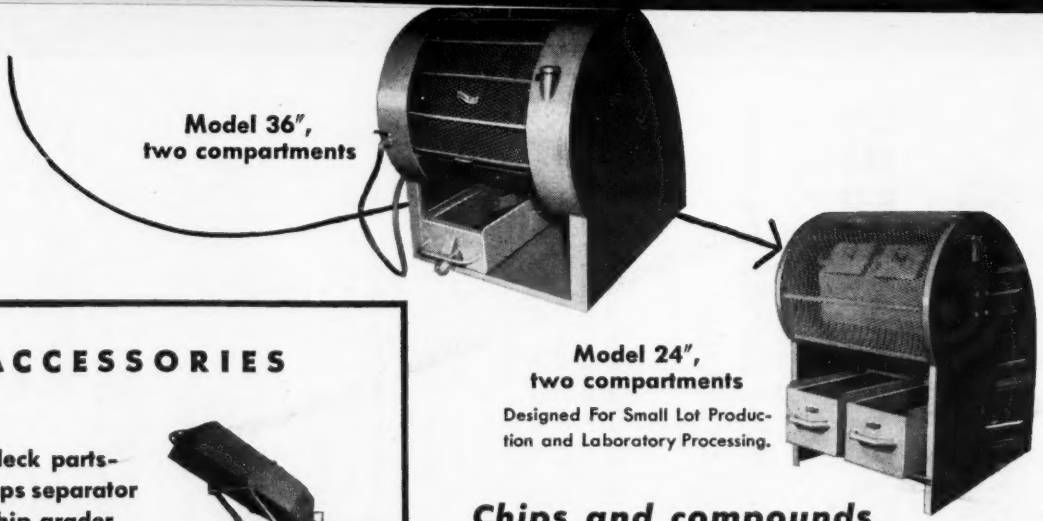
Model 66″, two compartments



Model 48″, two compartments

MACHINES

Grav-i-Flo 66″, 48″ and 36″ machines have cam locked doors with manually released safety stops; available with unlined or rubber lined cylinders, constant or variable speed drive, J.I.C. controls, and timers from 5 minute to 20 hour cycles. Equipped with electric wiring and water piping installed ready for plant



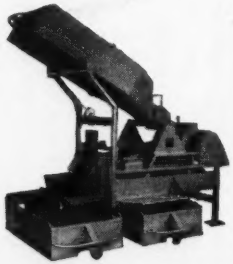
Model 36″, two compartments

Model 24″, two compartments

Designed For Small Lot Production and Laboratory Processing.

ACCESSORIES

Two deck parts-and-chips separator and chip grader



Occupies less floor space. Separates parts quickly without impingements. Grades 3 sizes of chips simultaneously.

Other Grav-i-Flo accessories include tubular yoke hoist pans, chip pans, wash-out doors, screens, chip bins, unloading boots, dip tanks.

Chips and compounds

Grav-i-Flo natural and synthetic deburring and finishing chips and highly developed compounds consistently outperform every type of tumbling process offered on the market.

Investigate!

Grav-i-Flo superiority in equipment and supplies has been proved to hundreds of users in many different industries. Let us show you, too, at no obligation. Our representative will visit your plant, or send samples direct to us. Engineering Service available to all users.

SEND FOR CATALOG showing complete line of Grav-i-Flo equipment, accessories and supplies.

THE GRAV-I-FLO CORPORATION

Dept. PF-12, 400 Norwood Avenue

STURGIS, MICHIGAN

New paint spray gun weighs only 15 ounces

BINKS MODEL 26 IDEAL FOR LIGHT PRODUCTION SPRAYING —AND FOR WOMEN OPERATORS

Binks Model 26 Spray Gun is especially designed for applications where the gun must produce high-quality finishes, yet be extremely light in weight. It is ideal for stenciling, blending, touching-up products coming off assembly lines and where women operators are doing light production spraying.

This featherweight gun increases efficiency by reducing operator fatigue. It saves money by supplying quality features normally found only in more costly guns. For example, it has a brass and steel fluid passage to protect the gun body from the corrosive attack of certain paints and fluids.

Model 26 can be used to spray lacquers, synthetic enamels, paints and other finishes and coatings of light or medium viscosity. Send coupon TODAY for details, including prices.

Send for Bulletin 26! This bulletin tells how the featherweight Model 26 Spray Gun saves you time and money. Facts backing each claim thoroughly illustrated. And here you'll find complete specifications with prices included. See your Binks industrial distributor for a copy or send in coupon.

MAIL COUPON today for Bulletin 26

Binks Manufacturing Company
3118-40 Carroll Ave., Chicago 12, Ill.

Gentlemen: Please rush my FREE copy of your Bulletin 26 describing your new featherweight Model 26 Spray Painting Gun

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ___ STATE ___

Binks
EVERYTHING FOR SPRAY PAINTING

REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

15 OZ.
BINKS
BINKS MFG. CO.
CHICAGO, ILL.
MODEL 26

Pigmented Phenolic Resin Finishes

Two pigmented phenolic resin finishes, designated as Parcolac 101 Black and Parcolac 102 Aluminum, and designed for use over Parco Compound, have been developed by Parker Rust Proof Company, 2172 E. Milwaukee Ave., Detroit 11, Michigan.

Development products of the Parker research laboratories, the two Parcolacs have undergone extensive laboratory and field tests, and have been "plant tested" and proved in production runs on iron and steel articles of many sizes, shapes, and uses.

Parcolac 101 Black produces a deep, intense black color; Parcolac 102 Aluminum creates an even, light gray finish which resembles an aluminum surface coating in appearance. Both products have excellent corrosion resistance. Production articles, finished with Parcolac 101 Black or Parcolac 102 Aluminum over Parco Compound, have withstood 100 hours in salt spray.

Sprayable, Strippable Masking Compound

A liquid masking compound, known as Copeel Strippable Plastic Coating SV442 for the protection of windows while trim is being painted has been introduced by Mass & Waldstein Co., 2130 McCarter Highway, Newark 4, New Jersey, Chicago and Los Angeles. The compound is applied to the win-

dow or other glass surface by either brushing or spraying, and air dries within 15-20 minutes. After the painting operations are completed, the Copeel SV442 is simply stripped off the window with the same ease as peeling a banana.

The masking compound is resistant to practically any type of paint in common use.

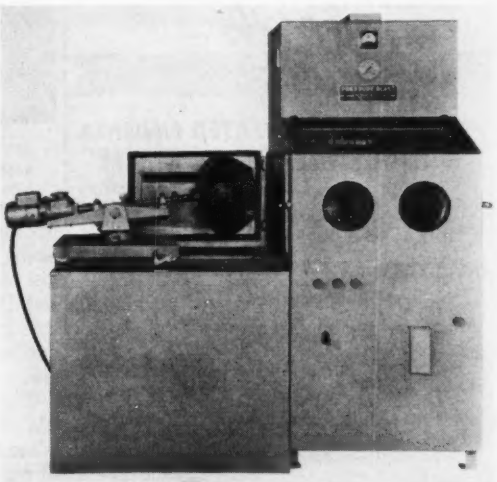
Detailed information and samples of Copeel SV442 are available on request from Mass & Waldstein Co.

Pressure Blast Roto-Barrel

Manufacturer: The Cro-Plate Co., Inc., 747-6 Windsor St., Hartford 5, Connecticut.

Known as the Pressure Blast Roto-Barrel, this wet-blasting unit was designed for the bulk, high-production rate finishing, cleaning or deburring of small parts such as screw machine products, stampings, small castings and extrusions, and precision machined components. The work is merely loaded into the expanded metal, plastisoled barrel and rolled into the interior of the cabinet where the blast gun, in a fixed but adjustable position aims in the open end. A variable speed drive rated at 0-78 rpm rotates the barrel, exposing the parts to the blast stream. Following the wet-blasting operation, the barrel is manually rolled out of the cabinet and the work is rinsed free of abrasive slurry at the machine. This is possible since the stand supporting the dolly and barrel attachment also incorporates a rinse facility. For quick, efficient loading and unloading, the entire drive, shaft and barrel arrangement swivels easily and can be lowered or raised.

Because of its versatile design, the Pressure Blast Roto-Barrel unit may also be used as a manually operated



Pressure Blast Roto-Barrel

There's still a NICKEL SHORTAGE! — BUT

Now you can have bright, attractive, wear-resistant chromium plated finishes *WITHOUT THE USE OF NICKEL*

LUSTER-ON® ZINCROME® PROCESS* provides *excellent corrosion resistance* — up to 50 hours standard salt spray

LUSTER-ON ZINCROME PROCESS provides *good wear resistance* — the hardness of chrome plate needed for tools, bumpers, etc.

LUSTER-ON ZINCROME PROCESS provides *accepted brilliant finish* — for outside wear exposure required for automotive trim, etc.

LUSTER-ON ZINCROME PROCESS provides *economical operation* — high, rugged quality at lowest possible operating cost

LUSTER-ON ZINCROME PROCESS provides a *precisely controlled "package" process*—10 easy-to-follow, easy-to-use steps

Specify

LUSTER-ON • ZINCROME • PROCESS

FOR CHROMIUM PLATED FINISHES WITHOUT THE USE OF NICKEL

Write for free data sheets and send a part for free processing

*Patent Applied for

THE *Chemical* CORPORATION

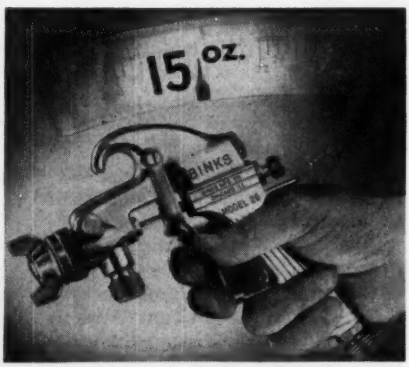
75 Waltham Ave., Springfield 9, Mass.

machine. Armports and knee-actuated triggers are provided so that the operator standing outside the cabinet may manipulate and actuate the blast gun which, while fixed for the barrel operation, is easily removable.

Two blast circuits are available, either regular velocity, which works on the aspiration or suction principle, or high velocity which operates on the pressure tank system, a patented feature of Pressure Blast equipment.

Lightweight Spray Gun

A lightweight spray gun to produce fine finishes has been developed by the Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Ill.

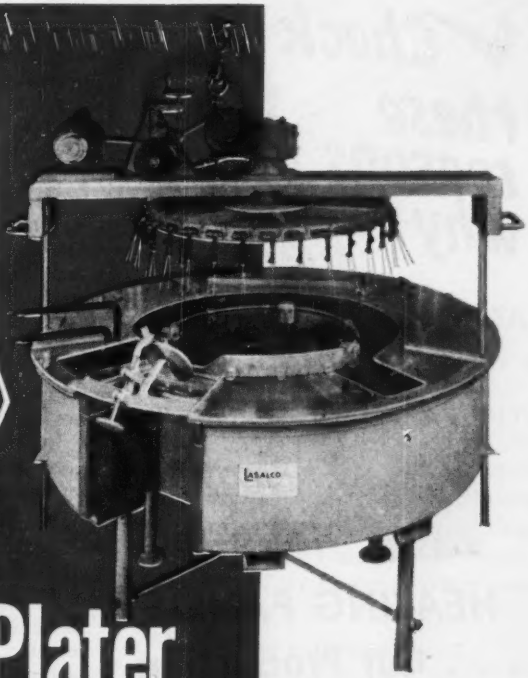


Model 26 Lightweight Spray Gun

The spray gun, designated as Binks Model 26, weighs only 15 ounces. The body is aluminum. Its handle and trigger are designed to fit even a small hand. The light weight, and easy fit, of this gun assures that women operators can use the Model 26 gun for long periods without muscular fatigue.

The manufacturer points out that "Model 26" produces high quality finishes because it uses nozzle setups similar to those on heavy duty guns.

Rotating Cathode Boosts Chrome Plating Up To 5700 Pieces Hourly!



LASALCO'S

Circular Chrome Plater

Lasalco's latest chrome plater with its continuously moving cathode offers some extraordinary cost-cutting and time-saving possibilities for increasing your output of pieces up to 3" long. Here are just a few of its many advantages:

- **One-man loading**
- **Fully automatic unloading**
- **No racks or rack upkeep**
- **Easily raised driving mechanism and cathode wheel gives quick access to coils and anodes. Any parts dropping into tank can be easily, instantly recovered.**
- **Unusually high production—5,733 pieces per hour at 13 seconds; 4,188 pieces hourly at 18 seconds; 2,635 pieces at 29 seconds. Minimum output, 420 pieces at 3 minutes.**
- **Machine is delivered complete, ready to install, and requires only necessary electrical connections and exhaust duct.**

Lasalco's Circular Chrome Plater can be a real profit builder. Write immediately for all the details.

SPECIFICATIONS

Cathode Wheel Diameter 30", 31 Fingers, 3" Centers
Effective Plating Travel 68.4"; No-plate Travel 25.8"
Anode Rods 24" I.D., 36" O.D., ⅜" Diameter
Center of Anode to Cathode Center 4"
Anodes, Flat 6% Antimonial Lead ¼" x 8" Three 24" Long; Two 24" Long; Two 2" Long; One 5" Long.
Tank Diameter 54", Depth 14"
Solution Capacity 115 Gals., 2" From Top
Heating, ¾" I.D. 6% Antimony Lead Steam Coil
Drive, ¼ H.P., A.C. Motor; Variable Speed Reduction

LASALCO, INC.

2818-38 LASALLE STREET • GRand 2990 • ST. LOUIS 4, MISSOURI

✔Check these reasons why

SYNTRON
Infra-red
HEATING PANELS
. . . Cut Production Time and Costs

✔ Made up of flat, thin strip heating elements. Throw a flat, uniform, radiating pattern of intense infra-red heat.

✔ They heat by direct radiation—not by reflection. No reflectors mean lower installation and maintenance costs with more infra-red heat thrown directly on the work.

✔ Sturdy box type design permits closer working tolerances with less power consumption. Easy, inexpensive fabrication of ovens with no cold spots.

✔ Syntron heating specialists can help you get better results at less cost on your own heating process. Write today for complete information—Free.

SYNTRON COMPANY
452 Lexington Ave. Homer City, Pa.

The gun has a replaceable cartridge-type air valve, and a brass fluid passage which protects the body from possible corrosion.

Air enters the Model 26 gun through an inlet at the bottom of the handle. This serves to distribute hose weight properly and make the gun's manipulation easier.

Binks' Model 26 spray gun is used for spraying lacquers, synthetic enamels, paints and all other finishes and coatings of light or medium viscosity. It is recommended for intermittent or production touch-up painting, and for stencilling and blending. Women operators, in particular, appreciate its lightness and convenience.

Bulletin 26, describing the Model 26 Gun, will be sent, without obligation, on request.

Selenium Rectifier

Completely self-contained Selenium Rectifier Models to provide DC power for electroplating, anodizing and other electrochemical processes have been announced by Rapid Electric Company, 2877 Middletown Road, New York 61, N. Y.

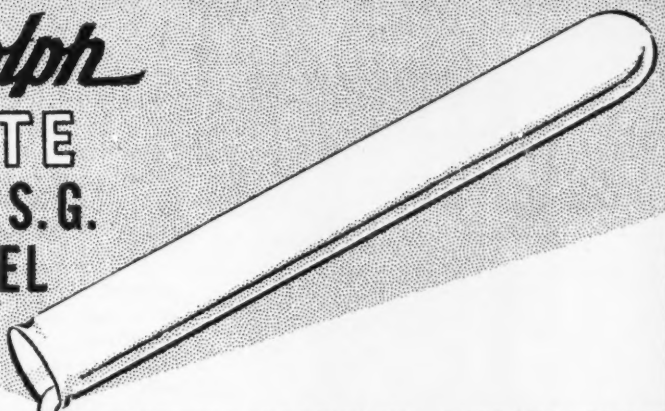
These models feature single knob controls which replace the three individual phase controls, and eliminate the possibility of single phasing.

The single knob controls permit voltage and current changes in fine increments with no interruption, covering the entire DC voltage range from 0-12 volts.

In addition to this improved control system, the new models have the other features standard in all Rapid Electric rectifiers including "custom-built" rectifier stacks, Class B insulated transformers, forced draft cooling, oversized copper bus throughout, electromagnetic starter, automatic overload protection, and full metering.

Selenium rectifiers are available in

Randolph WHITE BAKING S.G. ENAMEL



FOR VARIOUS SPECIALTY APPLICATIONS IN INDUSTRY . . .

- REFRIGERATORS
- WASHING MACHINES
- KITCHEN CABINETS
- HOUSEHOLD EQUIPMENT
- VENETIAN BLINDS
- AIRCRAFT

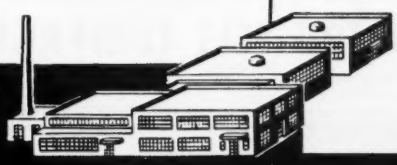
Out of Randolph's extensive experience and continuous research has come this remarkable finish exactly suitable for a wide variety of products. For equipment as different as Venetian blinds and airplanes, this enamel provides a surface coating with unexcelled qualities—

Faultless uniformity
Tough durability
Staunch protection
Striking eye appeal

Highly essential, too—outstanding Randolph service makes deliveries to you promptly for normal or rush-order production.

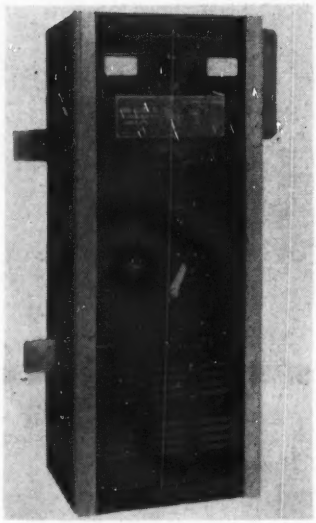
Let us show you what this enamel can do for your product.

Write us today!



RANDOLPH
PRODUCTS COMPANY
CARLSTADT, NEW JERSEY

DOPES · LACQUERS · ENAMELS · THINNERS



Selenium Rectifier

models ranging from 5 to 5000 amperes and from 1 to 60 volts DC output.

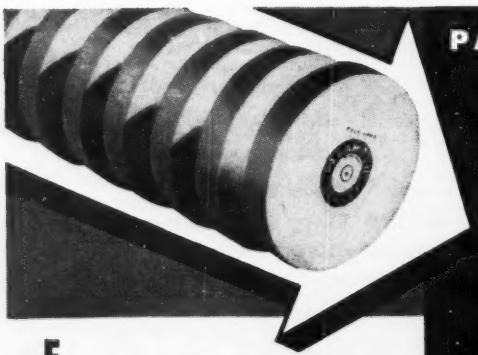
A catalog is available giving details.

KEMCLAD Hi-Heat Enamel

A heat-resistant, non-yellowing enamel for coating household appliances and other equipment exposed to sustained, moderately high temperatures has been developed by The Sherwin-Williams Co., Cleveland 1, Ohio.

The new coating is a modification of the silicone class of materials, and is currently offered in white only, but the company is prepared to produce the material in a range of colors if manufactures want it in different shades.

The new finish, labeled "KEMCLAD Hi-Heat Enamel," is recommended for use on phosphatized and clean steel. Its adhesion qualities are described as



PARAMOUNT BRAND

FELT WHEELS ...TOPS IN Durability

Even the softest of Felt Wheels offers a durability difficult to match with any other of the commonly used fabric materials. Not only is felt tough and resistant to wear but when wear does occur, the wheel can be re-faced or re-contoured.

The net result of this durability is longer wheel life—longer *useful* wheel life. Try a Paramount Brand Felt Wheel of the proper hardness competitively. Check it against other wheels. We are confident it will show you greater earnings as measured by finished articles per wheel life.

BACON FELT COMPANY

(Founded 1825)

447 West Water Street Taunton, Massachusetts

"America's Oldest Felt Manufacturer" "Felt Does It Better"

Your Supply House can Furnish Bacon PARAMOUNT BRAND FELT BOBS & WHEELS

MEMO
TO J.B.S. Plant Supt.
Let's check the Ransburg spray painting processes to see what they can do for our paint line... Their story sure sounds good.
E. M.

Yes, the Ransburg story of cutting painting costs to a fraction of the cost of other methods does sound good. It *is* good!

On most factory production lines, the Ransburg electro-coating processes will provide 2 to 4 times more parts per gallon of paint—automatically—with one operator doing the work of many.

That's because the Ransburg No. 2 Process is the most efficient spray coating process ever developed for industry's use.

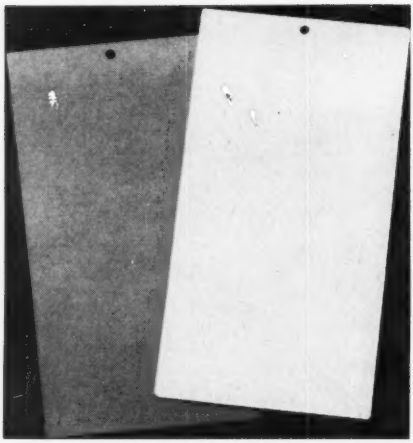
If you are a manufacturer of painted products, and if your work volume warrants conveyorized painting, we'd like to tell you more about the production efficiency of the RANSBURG No. 2 PROCESS as it applies to YOUR production. Too, we'd like to show you typical examples of customers' production lines where the Ransburg No. 2 Process is setting new quality standards . . . increasing production . . . and at the same time, saving manpower, money and materials.

RANSBURG

Write for literature, or send for "Miracles In Painting" —our new 16mm. sound and color movie which shows on-the-job examples of Ransburg Processes at work in industrial plants all over the nation.

Ransburg **ELECTRO-COATING CORP.**

INDIANAPOLIS 7, INDIANA



The sharp contrast in heat resistance between ordinary heat-resistant enamels and KEMCLAD Hi-Heat Enamel is seen in these two panels. The one at the left is finished with an accepted heat-resisting enamel and has been subjected to 375 deg. F. for 16 hours; the right panel, finished with KEMCLAD Hi-Heat Enamel, has been exposed to 450 deg. F. for 16 hours.

excellent. It is non-yellowing under sustained temperatures up to 500 deg. F., well above conventional heat requirements in the appliance field. It has excellent impact resistance and retains its attractive gloss despite exposure to high temperatures. Other tests to which the enamel has been successfully subjected include salt spray, hot grease, humidity, chemicals and household cleaners.

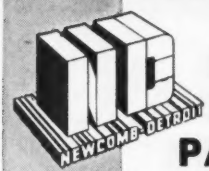
The material is formulated for spray application. Conventional spray equipment is satisfactory. The material is reduced 20 per cent with xylol or toluol for spray application. The baking period is 30 minutes at 400 deg. F.

NesTier Tote Box

Increased efficiency in the handling of very small parts is promised by a new and smaller NesTier that complements the two larger sizes in this materials handling system.

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF



INDUSTRIAL OVENS
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ESTABLISHED 1912
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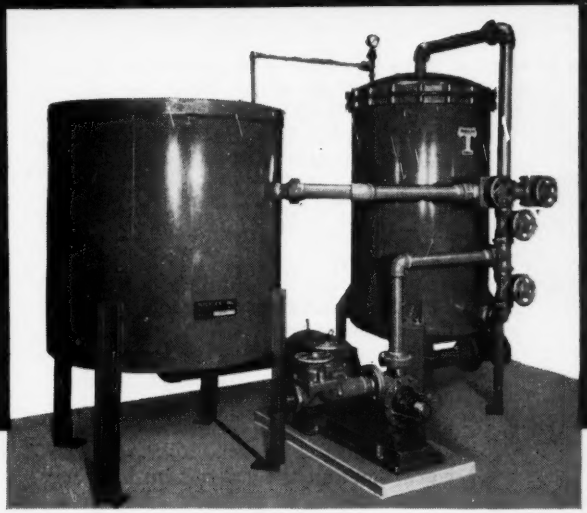


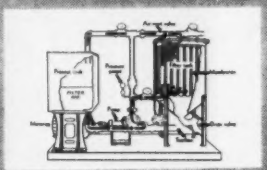
NOW–

New WAGNER Titeflex Filters end your filtering headaches

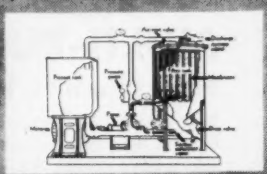
The outstanding simplicity and efficiency of Titeflex Filters are now backed up by the manufacturing facilities and electroplating experience of Wagner Brothers, Inc. Our acquisition of this leader in the filtering field means you now have Titeflex' faster cleaning, high flow rate and low operating cost *plus* the on-the-spot service of the Wagner Brothers organization in principal industrial areas.

Removal of sludge and other impurities (down to 1/10 micron) which are injurious to your plating quality is a cinch with Titeflex filters. Titeflex pumps the bath or cleaner through permanent membranes caked with a few cents worth of a filtering aid (diatomaceous earth). To clean, you turn a few valves and reverse the flow. There's no replacement, no manual cleaning labor, no dismantling. Your loss of filtering time is a matter of *minutes*. And the filtering operation requires fewer hours of inexperienced labor than any other equipment of comparable filtering efficiency.

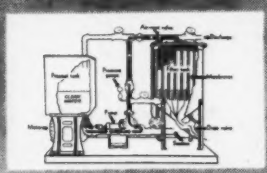
The complete standard line of Wagner-Titeflex Filters offers capacities from 1000 G.P.H. up, filter areas from 3 to 70 sq. ft.; special equipment designed and built to suit your requirements. Mail coupon on your letterhead for detailed information and filtering questionnaire. If you're a plating equipment distributor, ask about territories open.



PRECOATING: Cake of low-cost filter-aid is built up in minutes on exterior of cylinder membranes.



FILTERING: Sediment is deposited on layer of filter-aid, clear solution discharged from upper end of membranes.



CLEANING: Cake is cracked off by back-washing, broken up by built-in spray and drained off. No manual removal of residue.

Titeflex

YOUR SINGLE SOURCE FOR PLATING AND POLISHING EQUIPMENT AND SUPPLIES

Wagner BROTHERS INC.

DETROIT 3, MICHIGAN

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CINCINNATI INDIANAPOLIS

WAGNER BROTHERS, INC.
432 Midland, Detroit 3

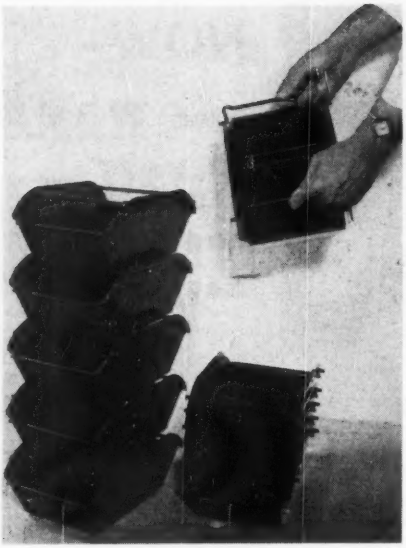
- ☐ Please send complete literature regarding Titeflex Filters.
- ☐ Have sales engineer call.
- ☐ We are interested in a Titeflex Filter distributorship.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____



NesTiers

Made of 20 gauge steel, the green enameled NesTier is capable of handling 200 pounds with standard handle and 400 pounds with heavy duty handle. It weighs three pounds and has volume of 238 cubic inches. It measures 12 inches long, 7¼ inches wide and 4¾ inches deep.

Like its big brothers, the new NesTier nests and tiers by simply flipping the handles at both ends. When nested, only about one-twelfth the space is required as when in the tiered position. It was developed in response to requests for a tote box that could hold reasonable quantities of small parts in the stockroom, on the production line, for transportation to shipping operations, and at assembly benches.

Since each end of the NesTier has an angled opening, stock can be checked at a glance without removing boxes above or below. They can be tiered approximately six feet without buckling

MULTI-PURPOSE POLISHING MACHINE

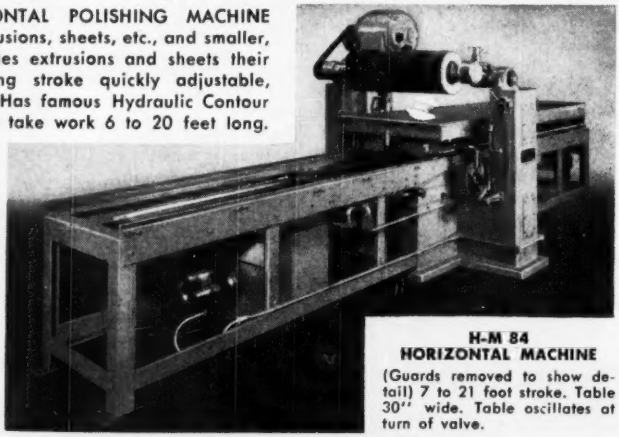
Horizontal Type—Hydraulically Operated

The CENTRAL HORIZONTAL POLISHING MACHINE handles long lengths, extrusions, sheets, etc., and smaller, odd-shaped pieces. Polishes extrusions and sheets their ENTIRE LENGTH. Polishing stroke quickly adjustable, 2 inches to full capacity. Has famous Hydraulic Contour Device. Standard sizes to take work 6 to 20 feet long.

- Polishes extrusions and sheets complete, end to end.
- Simple operation. Women run them.
- Adjustable stroke 2" to full capacity.

Machines, 7 to 21 foot stroke.

FULL INFORMATION ON REQUEST.

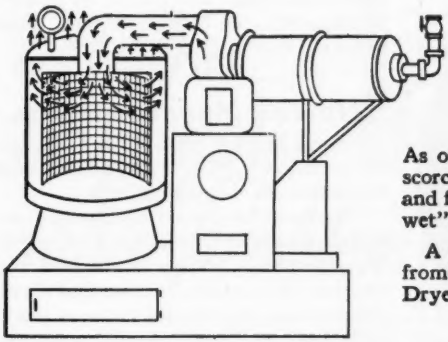


H-M 84 HORIZONTAL MACHINE
(Guards removed to show detail) 7 to 21 foot stroke. Table 30" wide. Table oscillates at turn of valve.

CENTRAL MACHINE WORKS

72 COMMERCIAL ST. • WORCESTER, MASS.

EVER BLOW INTO AN ASH TRAY?



If you did, you saw a practical demonstration of the principle of air deflection. In old type dryers, air *blown* in from the top is deflected by the top layer of parts. As one user put it, "the top layer gets scorched, the next layer is nice and dry, and from there on down the parts are still wet".

A powerful suction fan *draws* the air from the bottom of the modern Nobles Dryer. Fresh air rushes in from the top to fill the vacuum and is drawn through the entire contents from top to bottom where it is expelled with the water.

Steam or electric heaters may be mounted compactly in the cover in contrast with space consuming, heat wasting, separate units connected by pipe.

An internal expanding, hydraulic brake stops the machine smoothly, and quickly. The "brake pedal" is a ring extending around the entire working area so that the machine can be stopped instantly from any working position. In the interest of faster drying and lower costs write today!

NOBLES ENGINEERING & MANUFACTURING CO.

651 EAST SEVENTH STREET ST. PAUL 6, MINNESOTA

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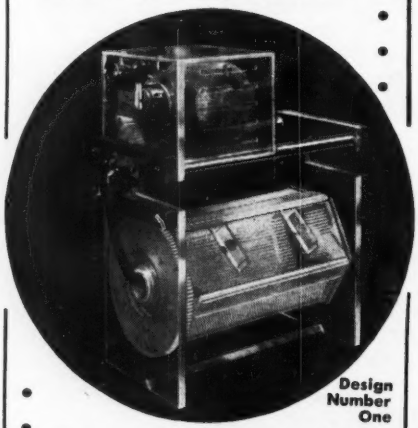
It's New --

the

Latest Model



Design Number One

Portable Lucite Plating Barrel

THE STUTZ PORTABLE PLATING BARREL is designed and constructed of High Temperature Lucite to provide continuous processing of piece parts through the operations of Alkali Cleaning, Water Rinsing, Acid Treatment and Plating. Progression through these operations is made by manual handling or if necessary with the assist of an overhead traveling hoist. The STUTZ PORTABLE PLATING BARREL is made in two sizes with cylinders having inside dimensions of 6" x 12" and 8" x 18". Also in half the diameter, 3" and 4" respectively. Cylinder can be partitioned. Standard perforations are 3/32" or larger. Smaller openings can be furnished as required. All gears are ½" High Temperature Lucite. Gear bearings are permanently lubricated. New heavy duty motor. Operating temperature up to 185° F.

Write for Our New Illustrated Literature Showing This and Other Design Arrangements.

Manufactured by

GEO. A. STUTZ Mfg. Co.

1647 Carroll Avenue, Chicago 12, Ill.

or bending of sides, depending on the weight of the parts.

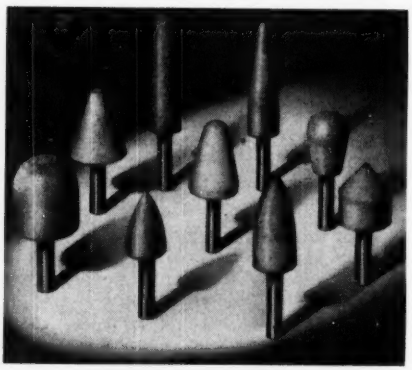
No special equipment is required for movement of the NesTiers. They can be transported on pallets, flat bed trucks, and wagons, or used on overhead conveyors with hangers.

The new NesTier is made by Charles William Doepke Mfg. Company, Rossmoyne, Ohio.

Nu-Tex Mounted Points

Manufacturer: Atlantic Abrasive Corporation, 524 Pearl St., South Braintree 85, Massachusetts.

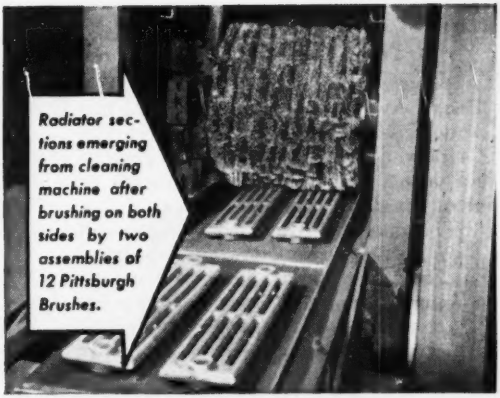
Designed for use on all types of precision instruments and machinery, Nu-Tex Mounted Points feature a soft, cushion-like grinding action that cleans, polishes and deburrs all types of metals and plastics in one simple operation.



Nu-Tex Mounted Points

Bonded together with a special resin under an exclusive Atlantic Abrasive manufacturing process, Nu-Tex Points produce an even, extremely smooth finished surface, eliminating the need for hand operations such as filing, scraping, sanding and burnishing. Nu-Tex Points are available in all popular grit sizes. Grades range from 0 (hard) to 5 (soft).

Pittsburgh Brushes help you solve problems like these!



Radiator sections emerging from cleaning machine after brushing on both sides by two assemblies of 12 Pittsburgh Brushes.

Cleaning Narrow Spaces — National Radiator Company, Johnstown, Pa., cleans 30,000 radiator sections a week! To insure a perfect final finish, even the narrowest spaces must be absolutely clean prior to assembly. Pittsburgh engineers were presented with the problem of designing a brush that would reach these spaces and would fit National's existing machine. Successful? National reports: Pittsburgh Brushes "do a better job of cleaning and are more economical."

Preparing Chills — At Continental Foundry & Machine Co., East Chicago, Indiana, chills used to cast iron rolls must be cleaned of the oxidized metal remaining from previous usage, as well as dirt and grease accumulated in storage. After experimenting with other brushes, Continental settled on Pittsburgh Brushes because they "do the job better and stand up longer than others previously used."

Improving Original Equipment — The Sommer and Maca Glass Machinery Co., Chicago, Illinois, uses Pittsburgh Brushes in the automatic washing machines they manufacture. Brushes formerly used simply didn't have the over-all density pattern needed. Pittsburgh engineers studied the problem and designed a brush which Sommer and Maca approved "because of denser bristle pattern and lower cost."

WRITE TODAY FOR FREE BOOKLET!

Write for a free copy of our booklet that shows, through actual case histories, how Pittsburgh can help *cut your* brushing costs. Address: PITTSBURGH PLATE GLASS COMPANY, *Brush Div.*, Dept. W-8, 3221 Frederick Ave., Baltimore 29, Maryland.

PITTSBURGH *Power Driven* **BRUSHES**

BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

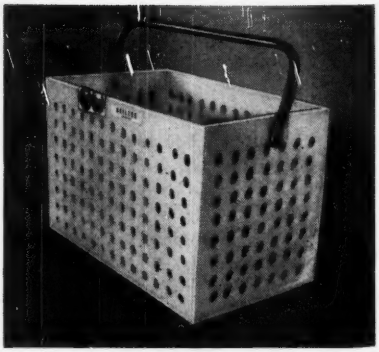
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

No. 994 Griptex

Adhesive Products Corporation, 1660 Boone Ave., New York 60, N. Y., has announced the development of No. 994 Griptex, a strong heat resistant cement for attaching sandpaper to metal or wood sanding discs.

The manufacturer claims that worn discs need not be removed individually, but that additional discs can be cemented one on top of the other until six or eight discs have accumulated, at which time all may be removed easily at one time.

Agilene Dipping Basket



Agilene Dipping Basket

American Agile Corporation, P.O. Box 168, Bedford, Ohio, fabricator of polyethylene and unplasticized polyvinyl chloride by the hot gas welding process, has announced development of a non-corrodible dipping basket.

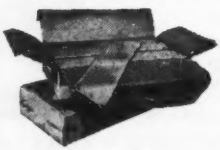
Of all welded design in Agilene, this development makes available a dipping basket with the same features of strength, light weight, and chemical resistance which have made Agilene a material of construction in the metal cleaning, plating, chemical and allied industries.

For Dust Free Finishes!

BOND TACK CLOTH

IN ROLLS

Cut off any size piece to use as needed.



IN BULK

Cut and folded. Ready to use.

STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME

Now Available in Rolls or Cut Bulk—White or Gold

In Three Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

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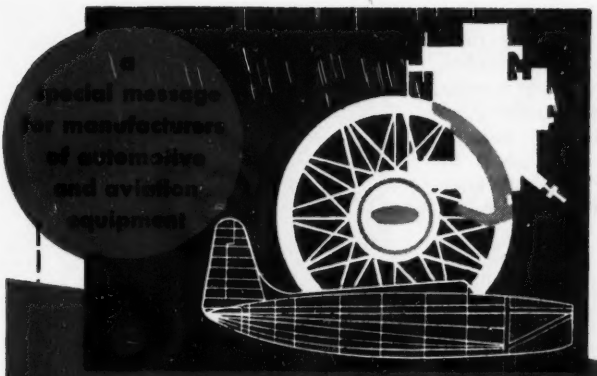
ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON



need a finish for low cost corrosion protection or showroom sparkle? *specify*

IRIDITE

Here's a finish for non-ferrous parts that gives high corrosion protection, a firm and lasting base for paint or showroom sparkle . . . yet at low material and production costs. And, you can easily "Touch-up" scratches, repairs, welds, etc. on light metal parts! Here's Iridite . . . and here's how you can use it:

ON ZINC AND CADMIUM you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

ON COPPER . . . Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

ON ALUMINUM Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

ON MAGNESIUM Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

WANT TO KNOW MORE? We'll gladly treat samples or send you complete data. Write direct or call in your Iridite Field Engineer. He's listed under "Plating Supplies" in your classified telephone book.

ALLIED RESEARCH PRODUCTS
INCORPORATED
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Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals, ASP Plating Chemicals.

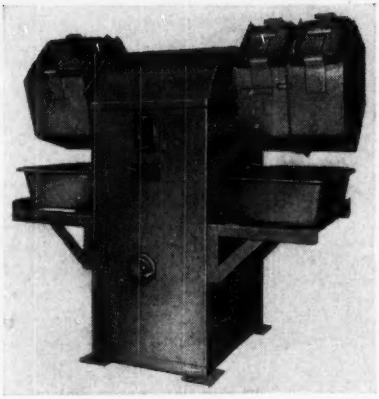
The basket pictured is of 3/8 inch Agilene plate, 20 inches long, 12 inches wide, and 14 inches deep. It has a movable bail type handle of Agilide (unplasticized polyvinyl chloride); is light in weight, unbreakable and inert to chemical attack by acids, alkalis and other corrosive inorganic solutions up to 160 deg. F.

Agilene tanks, for use in conjunction with this dipping basket, as well as Agilene and Agilide, are also available.

Multiple Burring Barrel

Manufacturer: Rampe Manufacturing Co., 3320 St. Clair Ave., Cleveland 14, Ohio.

Designed to be used on the Rampe Twin Finisher, the Multiple Burring Barrel makes possible the handling of two lots of parts in the same time formerly required for one lot. The multiple units are interchangeable with the single hexagonal barrel supplied as standard parts on the Rampe Twin Finisher. Multiple units can be furnished unlined or lined with vinyl plastic, as desired.



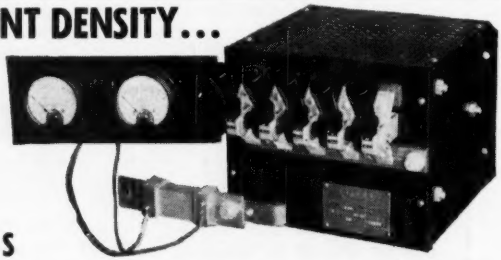
Multiple Burring Barrel installed on Rampe Twin Finisher

FOR THE RIGHT CURRENT DENSITY...

USE

COLUMBIA

TANK RHEOSTATS



It's easy to adjust your tank voltage to suit the load with a Cast Grid Type Columbia Tank Rheostat. Standard sizes from 15 to 5000 Amperes, 1 to 6 Volt drop. Other voltage drops as specified.

COMPARE THESE OUTSTANDING FEATURES:

- Cast Grid Resistors, rugged and resistant to chemical fumes.
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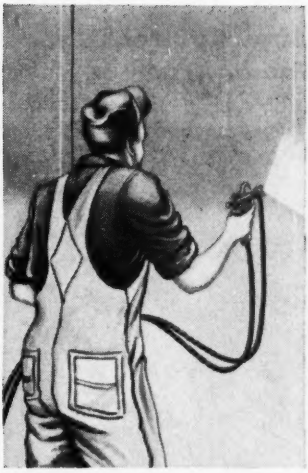
- Rugged construction and liberal design provide ample capacity for intermittent and momentary overloads.
- Entire rheostat, including instruments, easy to install.

Write for Bulletin PF-500

COLUMBIA ELECTRIC MFG. CO.

4535 HAMILTON AVE. • CLEVELAND 4, OHIO

• ***Also Manufacturers of Motor Generator Sets, Reversing Switches, Tong Test Ammeters*** •



off again – on again – clean again with

"LIQUID ENVELOPE"

STRIPPABLE BOOTH COATING

Spray "Liquid Envelope" on a clean booth. When over-spray accumulates, break coating and peel off in great big sheets. Re-spray—and you have a clean booth in minutes. That's the low cost way to keep spray booths firesafe, lighter, better ventilated, too.

NEW USERS: Order a 5 gallon Test-Sample at the drum-lot price. That's the way hundreds of smart operators learned how to save time and money on booth cleaning.

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DRAWING on the combined experience of a group of thirty-nine outstanding experts, the new MODERN ELECTROPLATING brings you a complete, up to date one-volume summary of current industrial electroplating processes. This is the *only* book that emphasizes *both* practical aspects *and* basic theory.

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- Uses both the "engineering" system of weights and measures *and* CGS equivalents.

November, 1953
563 pages
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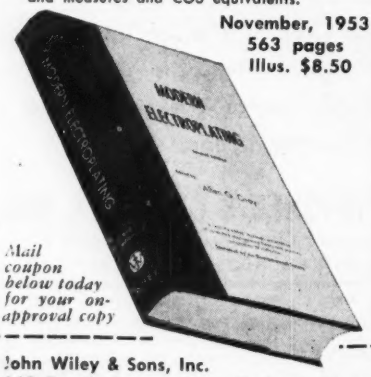

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(PF-123)

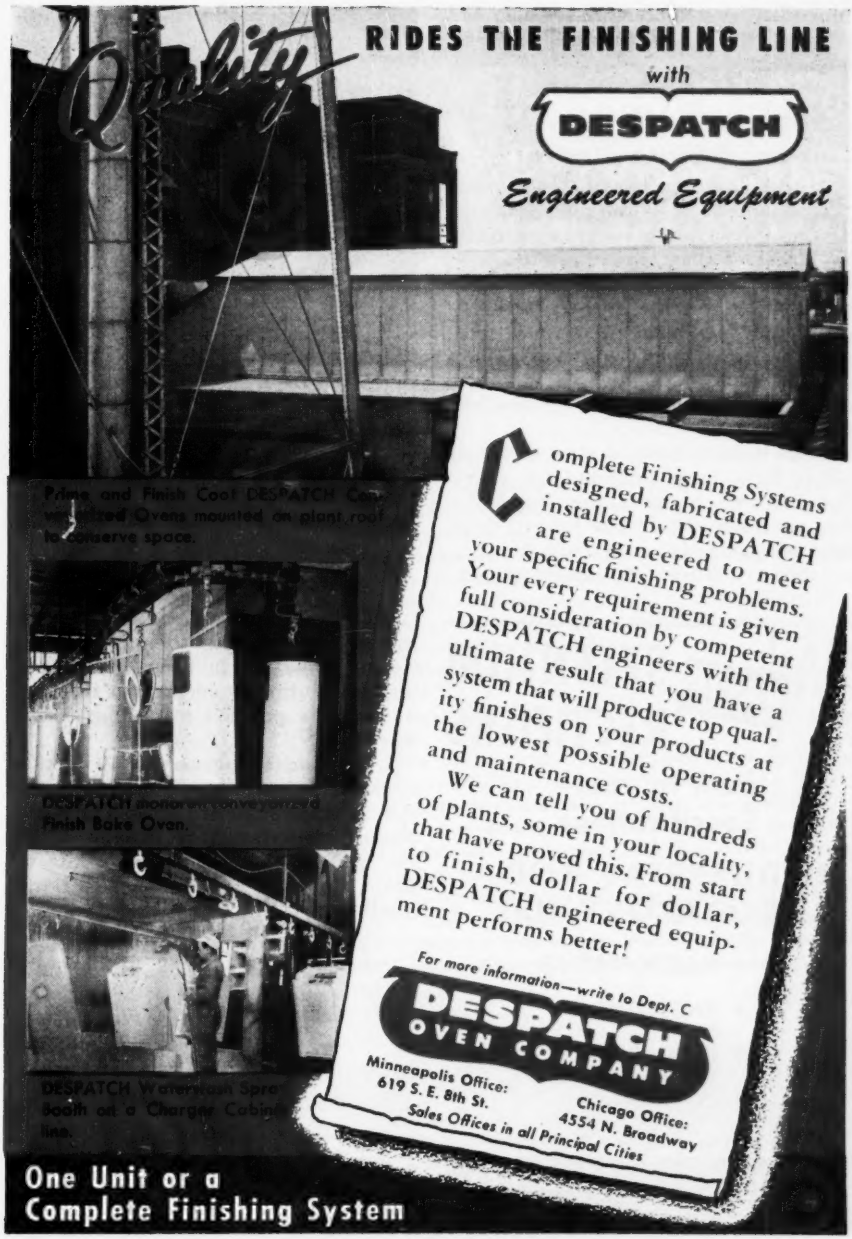
Brightboy Rubber Cushioned Abrasives

A series of rubber cushioned abrasives has been announced by Weldon Roberts Rubber Co., Sixth Ave. and N. 13th St., Newark 7, N. J.

Brightboy Rubber Cushioned Abrasives

Known as the Brightboy BL series, the abrasives are available in three grades: 54BL, coarse; 70BL, medium, and 120BL, fine; and are made in a variety of sizes in wheels, discs, sticks, rods, cylinders, tables and blocks for machine and manual use.

The Brightboy BL series features a new rubber binder, carefully compounded with abrasive grain, to achieve a tough rubber cushion for the evenly blended abrasive. According to the manufacturer, the new textures have been particularly successful in removing heavy tool marks from forged aluminum, smoothing weld marks, polishing and deburring stainless steel, and performing many operations on both hard and soft metals. The manufacturer of Brightboy states that because of its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RIDES THE FINISHING LINE
with
DESPATCH
Engineered Equipment
Prime and Finish Coat DESPATCH Conveyorized Ovens mounted on plant roof to conserve space.
DESPATCH monorail conveyorized Finish Bake Oven.
DESPATCH Waterfall Spray booth on a Charger Cabinet line.
Complete Finishing Systems designed, fabricated and installed by DESPATCH are engineered to meet your specific finishing problems. Your every requirement is given full consideration by competent DESPATCH engineers with the ultimate result that you have a system that will produce top quality finishes on your products at the lowest possible operating and maintenance costs.
We can tell you of hundreds of plants, some in your locality, that have proved this. From start to finish, dollar for dollar, DESPATCH engineered equipment performs better!
For more information—write to Dept. C
DESPATCH OVEN COMPANY
Minneapolis Office: 619 S. E. 8th St.
Chicago Office: 4554 N. Broadway
Sales Offices in all Principal Cities
One Unit or a Complete Finishing System

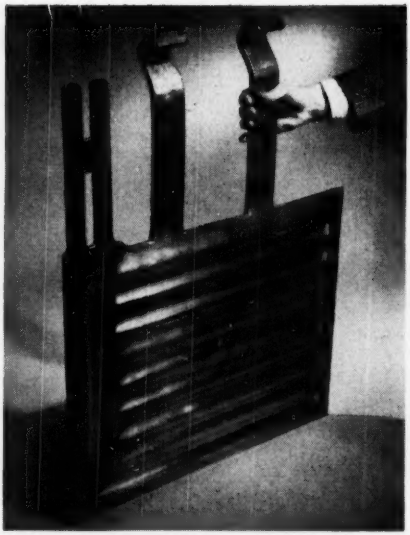
versatility, its applications range far beyond the scope of other finishing methods.

Lead Plate Heater

A lead plate type heater for low pressure steam work in the chemical and process industries has been announced by Knapp Mills Inc. of New York.

Engineers have long recognized the desirability of plate type heaters because they are compact, strong, relatively light in weight, and because they provide the largest practical square footage of heating area in the smallest space.

Plate heaters made of steel and steel alloys have been available for years. It is believed, however, that this is the first successful lead plate heater. Lead has exceptionally good corrosion resistance to sulfuric, phosphoric, chromis- sulfurous acids, sulfates and the like. In order to produce the new heater, Knapp Mills Inc. had to overcome severe fabricating problems, but the firm is now in a position to produce them in volume.



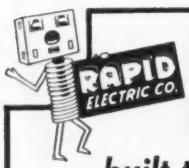
Lead Plate Type Heater

Recommended for use with 10 pounds of steam or less, the heaters are available in three standard sizes. The engineering department of Knapp Mills Inc. will also design special units to adapt the heater to unusual working conditions.

	DIMENSIONS				Surface Area
Type	A	B	C	D	Sq. Ft.
1	24"	9"	12"	3"	6.6
2	36"	9"	21"	6"	9.9
3	48"	12"	24"	12"	13.2

Three-M-ite Multicut Cloth Belt

Minnesota Mining and Manufacturing Co., 900 Fauquier St., St. Paul 6, Minn., has announced production of a



SELENIUM RECTIFIERS

. . . built to your Specifications

INDUSTRIAL AND LABORATORY USE

- ELECTROPLATING
- ANODIZING
- PERIODIC REVERSERS
- CONTROLS

CATALOG AVAILABLE ON REQUEST

RAPID ELECTRIC CO.
2877 MIDDLETOWN ROAD, N. Y. 61, N. Y.

"YOUR COST PER FINISHED ARTICLE IS THE *TRUE* COST OF YOUR CLEANER"

Gloom had settled over the "Super's" office. Inspection was rejecting bumper after bumper because of tiny defects marring its gleaming finish.

To make matters worse—ALL the usual test methods failed to disclose the cause of the rejects.

Finally – Northwest was called. A "Cleaning Specialist" rushed to the scene. His methodical check of the cleaning and plating operations revealed nothing amiss.

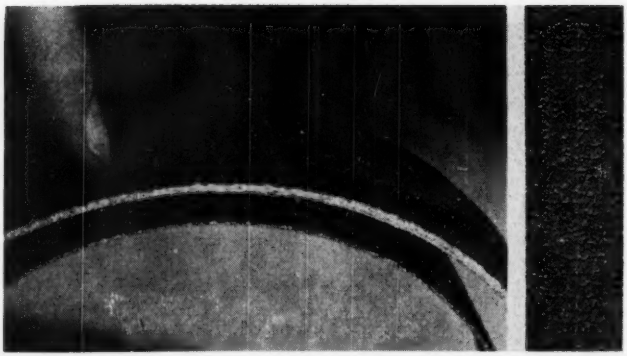
Retracing his steps, the Northwest "Cleaning Specialist" found "HER." A cute blond—busily racking bumpers—with lovely hands encased in gloves held together with liberal strips of zinc oxide tape.

Here was the culprit. Her taped gloves left invisible traces of rubber-like adhesive on the parts after they had been cleaned. A new pair of gloves and production returned to normal.

This little episode illustrates our point that Northwest's "Cleaning Specialists" are not only cleaning experts in a technical sense, but practical production engineers as well.

Any one can give you a cleaning compound that will do a job of sorts, but a Northwest "Cleaning Specialist" will give you the right cleaner to keep your line running smoothly. This is the reason so many plants rely on Northwest Chemicals AND SERVICE.

Got a problem? Let our cleaning experts help you!



"Three-M-ite" Multicut cloth abrasive belt, left, shows greater thickness as compared to conventional belt. Inset at right shows how surface opens up under work pressure, producing desirable condition known as "cracking."

heavy-coated abrasive belt combining the polishing characteristics of hand-coated glue and grain set-up wheels and belts, and offering all the advantages of a coated abrasive belt manufactured under controlled factory conditions.

Originated to replace set-up wheels and belts throughout the metalworking field in such markets as the manufacture of hand tools, cutlery and surgical instruments, the new belt is said to retain all the advantages of a factory coated polishing member — precision coating, scientific mineral orientation, factory control, and flexibility of use.

The belt is available in grit 60 and grit 150 aluminum oxide mineral in all standard widths and lengths.

Park No. 290

BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

Du Pont Hypalon Pump Impeller

Eco Engineering Co., Newark, New Jersey, has announced the addition of another material of impeller construction for Allchem pumps—Du Pont "Hypalon."

This chlorinated polyethelene polymer is particularly advantageous for the service since it is dimensionally stable up to 160 deg. F. and permits pump operating pressures to 150 psi.

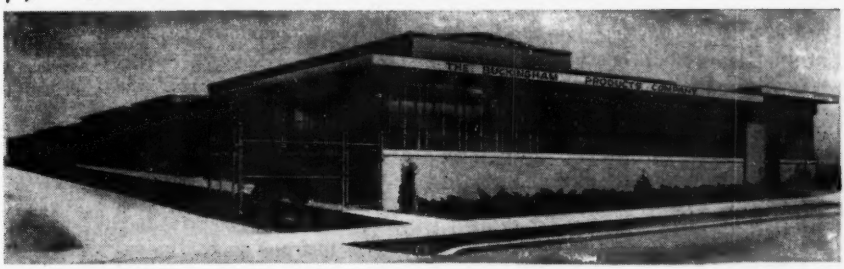
Chemically, these impellers are ideal for such chemicals as chlorine dioxide, chromic acid, nitric acid, sodium hypochlorite, stannous chloride, sulfuric acid, and pickling and electroplating solutions.

Hypalon has zero moisture absorption, high immunity to attack by ozone, good flex life, and resistance to oxidation and abrasion.

Other Eco impeller materials for

Complete, Modern Facilities Assure You The Utmost in Quality and Service on

BUCKINGHAM POLISHING and BUFFING Compositions



- Stainless Steel Composition
- White Finish
- Tripoli
- Chrome Coloring Composition
- Greaseless Composition
- Emery Cake
- Brass Coloring
- Emery Paste
- Burring Compound*
- Grease Stick
- Spray Pastes Stainless Steel Tripoli

Representation in Major Cities *Write Dep't. C for Samples*

The BUCKINGHAM PRODUCTS Co.

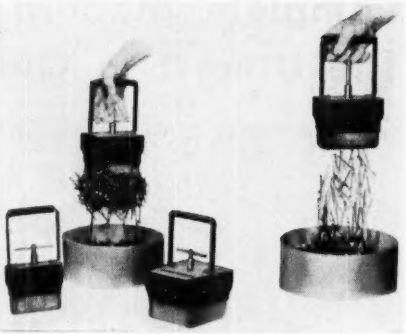
14100 FULLERTON AVE. • DETROIT 27, MICH.

pumping neutral or chemically active fluids include Teflon, phenolic plastics, synthetic rubber, powdered metals, monel and other nickel alloys.

Hand Magnetool

A 70-Series permanent-magnetic Multilift hand Magnetool, replacing the Model S, has been announced by Magnetool Division of Multifinish Mfg. Company, Dept. 491, Detroit 7, Michigan. The tools are used for rapid and convenient pick-up of small parts, metal scrap, nails, tacks, staples, and the like, from boxes, kegs, tables, or floors.

Many improvements have been made in the 70-Series. These include elimination of the projecting shelf which impeded pick-up in certain applications, greater capacity, easier burrowing into leads, and increased durability. In addition, the new series has been made more dust and water proof.



Hand Magnetool Series 70

Complete and instantaneous load release is accomplished by simple hand-squeeze pressure. The 70-Series models are not electric, require no batteries or wires. Alnico permanent magnets are used.

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.

5204 Harvard Avenue
Cleveland, Ohio

Alka-Strip

An addition to its line of multi-purpose paint strippers and cleaners has been announced by the Whitfield Chemical Co., Dept. 20-C, 14225 Schaefer Highway, Detroit 27, Michigan, manufacturer of industrial metal cleaning chemicals and processes. The new remover is sold under the trade mark Alka-Strip.

Used for chemical stripping of organic finishes and complete removal of pigmented-primer residues from steel, zinc, and magnesium, Alka-Strip can also be applied for deflocculation of paint overspray, cleaning phosphatizing systems, and removal of abrasive, lapping, or burnishing residues.

Alka-Strip can be applied in tanks, mechanical washers, spray booths, or dust-collectors, using a concentration of ½ to 32 oz. per gallon of water at temperatures from 70 deg. F. to boiling. A spray rinse is beneficial for complete

for batch or continuous production

KIRK AND BLUM *industrial ovens*

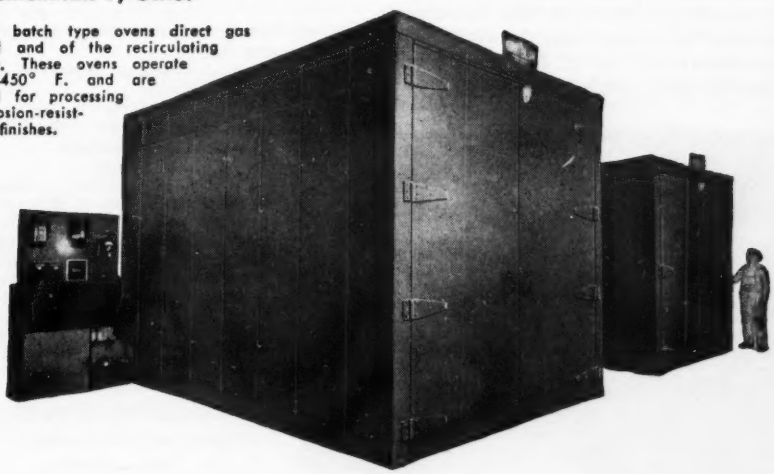
• **Save Space** • **Speed Production** • **Improve Quality**

Compactly designed and expertly engineered to meet specific production requirements, these recent installations illustrate KIRK & BLUM Ovens built for many uses.

From mammoth conveyor ovens for high production to the smallest laboratory units, KIRK & BLUM Industrial Ovens are equipped with complete temperature and safety controls to assure performance . . . to insure quality results.

Many ovens are shipped complete from the new KIRK & BLUM plant, ready to use as soon as necessary connections are made.

Write for booklet, "Industrial Ovens," showing other typical installations. The Kirk & Blum Mfg. Co., 3116 Forrer Street, Cincinnati 9, Ohio.



Two batch type ovens direct gas fired and of the recirculating type. These ovens operate at 450° F. and are used for processing corrosion-resistant finishes.

For more complete information on products and processes use READER SERVICE CARDS inside covers.

removal of residue.

This latest Whitfield remover comes in powder form; water soluble, nonflammable, it does not foam or cake, according to the manufacturer.

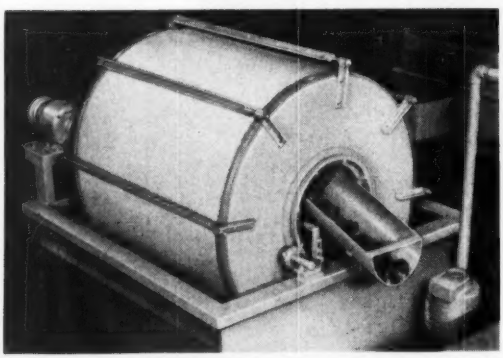
Automatic Filter

The Murray-Way Corporation, Maple Road E., P. O. Box 180, Birmingham, Michigan, has announced the development of an automatic filter for all types of industrial filtration.

The Murray-Way Filter automatically rotates fresh filtering area into position while simultaneously ejecting contaminant cake. Filtering screen material can be supplied in monel, stainless steel, brass or bronze in various mesh openings to fit all requirements.

Built to conserve valuable floor space, this compact unit offers unusually great filtering capacity in proportion to floor area occupied.

The Murray-Way Filter may be used on an individual machine unit, or as a central filter for many units. The gallon capacity of filtration may be easily increased by adding filter drums in tandem—separately, or in the same tank to meet requirements.



Automatic Filter

PRODUCT LITERATURE

In requesting copies of catalogs or bulletins mentioned in this issue — use the READER SERVICE CARDS between the covers.

FACTS ABOUT SILICON CARBIDE. Since its discovery in 1891 by Edward Goodrich Acheson, silicon carbide has been generally known for its widespread use as an abrasive. Available for use as loose grain and in the form of bonded and coated abrasive products, silicon carbide is capable of grinding and polishing a wide range of metallic and nonmetallic materials.

In addition to its abrasive applications, however, silicon carbide also possesses some unusual physical and chemical properties, and is finding increasing use in the manufacture of a number of other compietely different types of products:

1. Super-refractories and refractory cements—where high thermal conductivity or high resistance to abrasion, elevated temperature, chemical attack or thermal shock are needed.
2. Electric heating elements—for electric furnaces for temperatures up to 1500 deg. C.
3. Resistors—for many types of electrical applications.
4. A deoxidizer in the metallurgy of iron and steel.
5. Catalyst carriers.
7. Porous media.

A 52-page brochure, disclosing the properties of silicon carbide as related to the above applications and outlining manufacturing techniques, can be obtained, free of charge, by writing to **THE CARBORUNDUM COMPANY**, Niagara Falls, N. Y., attention: Public Relations Dept.

ATTRACTIVE

What eye can overlook — and what willpower can resist — the compelling attraction of a product that combines beauty of line with a covering which shows selling features to best advantage? That's why the selection of a fine finish is so important to the selling success of the products you offer — and why it will pay you to consult with our technicians for suggestions. Whether it's beauty you're emphasizing, or the functional appeal of rugged-duty merchandise, Rockford Varnish Company can supply you with the exact coating to suit your needs.

Research, Quality, Service

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Affiliate
GORDON BARTELS CO.
Roller Coating Specialists

VAPOR DEGREASING MANUAL. The Circo Equipment Company has compiled a comprehensive work on the subject of vapor degreasing which, according to President Melville Morris, is the most complete volume available on this important phase of metal cleaning.

Circo's Vapor Degreasing Manual comprises 34 pages of detailed information ranging from a description of degreasing processes to maintenance and trouble-shooting.

The volume is fully illustrated with diagrams and cutaway photos. After describing and portraying the basic modes of degreasing, the work describes the general and specific designs of degreasing equipment. There is a complete section on installation of equipment, with a description of problems encountered and how to meet them. Other full sections deal with operating instructions and actual cleaning of work.

Special attention is given to maintenance of equipment, "trouble shooting" and servicing. Solvents are also discussed in detail, as well as types, usage and operation of solvent recovery stills. A copy of the Circo manual may be obtained by writing the Circo Equipment Company, 128 Central Avenue, Clark (Rahway), N. J.

Distributors in Principal Cities
FILTER
50-1500 GAL/HR
*Reg. App. for
ANY ELECTRO-PLATING SOLUTION
NO PITTING
NO ROUGH DEPOSITS
Model ASI 600
Cap. 850 gal/hr
• Filters all solutions from pH 0 to pH 14. • No loss of precious solutions. • Filter Assemblies—H.T. Lucite, SS 316, Rubber-Lined, Haveg or Sethrin*. • Filter Tubes—Cotton, Dynel, Porous Stone, or Porous Carbon. • Pumps—SS 316, Hastelloy, Plastic; Centrifugal or Self-Priming.
Sethco MFG. CO.
70-72 Willoughby St., Brooklyn 1, N. Y.

PLEXTONE BULLETIN. TECHNICAL BULLETIN NO. 520, describing multi-colored enamels, is available from **Mass & Waldstein Co.,** 2119 McCarter Highway, Newark 4, New Jersey.

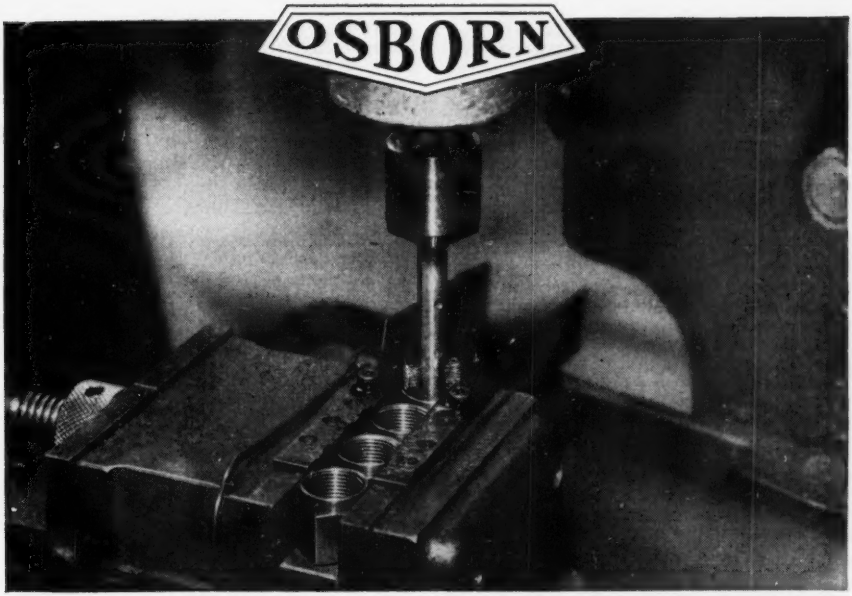
The bulletin outlines the characteristics of the Plextone finishes, covering physical properties of these enamels. Application instructions, including specific recommendations concerning spray equipment, atomizing pressures, drying time, reduction, and proper surface preparation of the product to be painted, are presented in detail in the data sheet.

SERVICE REPORT ON OAKITE CRYSCOAT HC. A Field Service Report describing the characteristics, methods and equipment required to use CrysCoat HC, a phosphatizing material used to create a complex phosphate coating on steel and iron, is available from **Oakite Products, Inc.,** 19 Rector St., New York 6, New York.

Use of the phosphatizing material in either a dip tank or pressure spray washing machine setup is described fully. Coating weights obtainable by either method are listed, and equipment requirements are outlined.

IMMERSION HEATER LEAFLET. An illustrated leaflet describing the features, sizes, and advantages of Glorod immersion heaters for alkaline solution heating is available from **Cleveland Process Co.,** 7016 Euclid Ave., Cleveland 3, Ohio. The folder describes the Glorod over-the-side type steel electric immersion heaters with specific recommendations concerning the application of these heaters to various alkaline electroplating solutions.

FILTRATION FOR PAINT SPRAY BOOTH WATER. Automatic skimming and filtration of water used in water wash spray booths is described in a catalog available from **Industrial Filtration Co.,** Lebanon, Ind. The catalog covers the operating principles of the Delpark Industrial Filter, describing and illustrating its application in several plants. This filtration system is particularly adapted to plants in which high production spraying is performed. Continuous filtration of spray booth water keeps paint spray booths operating at peak efficiency and assists in keeping maintenance on booths and auxiliary equipment at a minimum.



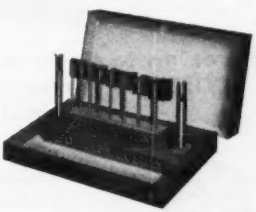
This brush cleans up when the chips are down

Deep down in the threads of these stainless steel coupling nuts are tiny abrasive chips and burrs which can ruin a good fit and costly thread gages.

The problem here was to clean out those chips and burrs *completely.* Hand methods were slow and far from thorough. The inspection bench kept sending too many back for re-working . . . time-consuming, costly.

Then Osborn Situft Brushes were tried and the threads were deburred and "de-chipped" quickly and cleanly every time. Mounted in its holder, the Situft Brush is chucked in the tapping head. Then the brush *threads* its way in at 100 fpm, reverses and threads its way out at 200 fpm . . . the bristles getting down to the roots of the threads and removing all abrasive chips and burrs without a miss.

If you have any kind of a deburring, cleaning or finishing problem, a special Osborn-equipped machine or Osborn brushing machine may be the answer you're looking for. We'd be glad to send you the new free Bulletins on Situft Brushes and Automatic Deburring. Or, if you prefer, why not take advantage of the wide experience of your **O**sborn **B**rushing **A**nalyst to help on your problem. Call him today, or write *The Osborn Manufacturing Company, Dept. O-12, 5401 Hamilton Avenue, Cleveland 14, Ohio.*



Kit of Situft Brushes and holders is available. Variety of brush sizes to suit various applications. Write for bulletin on Osborn Situft Brushes.

Osborn Brushes

OSBORN BRUSHING METHODS • POWER, MAINTENANCE AND PAINT BRUSHES • BRUSHING MACHINES • FOUNDRY MOLDING MACHINES

REVIEW OF ASTM RESEARCH. Copies of a 22-page pamphlet, **"REVIEW OF ASTM RESEARCH,"** are available, without charge, from **ASTM Headquarters,** 1916 Race Street, Philadelphia 3, Pa.

This material, prepared by the ASTM Administrative Committee on Research, summarizes the work of the various technical committees of the Society as of May 1953.

PROTECTIVE COATING BROCHURE. ZINCILATE, a protective coating for iron, steel and aluminum products, is described in an illustrated brochure published by **Industrial Metal Protectives, Inc.,** 401 Homestead Ave., Dayton 8, Ohio.

Available in six basic formulations, Zincilate may be applied by spray, brush, dip or flow-coat methods, to new products or to existing structures. On many applications, one coat provides maximum protection against corrosion and abrasion, increasing the service life of the product and improving its appearance.

The brochure contains complete information on this self-protecting coating and illustrates several typical applications in varied fields.

today's
wonder drug"
for industry

Saves up to 95% of FINISHING COSTS on almost all types of parts!

Write for NEW, FREE 52-page Catalog, "Supersheen Speed Finishing." Gives complete story — hundreds of "before and after" pictures.

Dept. A-12

ALMCO Supersheen
AMERICA'S LARGEST MANUFACTURER OF ADVANCED BARREL FINISHING EQUIPMENT – MATERIALS AND COMPOUNDS
ALBERT LEA, MINNESOTA

AIRLESS SPRAY PAINTING. An illustrated article by James A. Bede, president of **Bede Industrial Products, Inc.,** 1110 Brookpark Road, Cleveland 9, Ohio, describes the Bede process of airless spray painting. Equipment required for the operation of this process is described and illustrated. Advantages gained through the use of the process are listed.

TECHNICAL DATA ON KANIGEN. A folder describing the characteristics of the Kanigen nickel plating process and the nickel deposit, is available from **General American Transportation Corp.,** 135 South LaSalle St., Chicago 90, Ill.

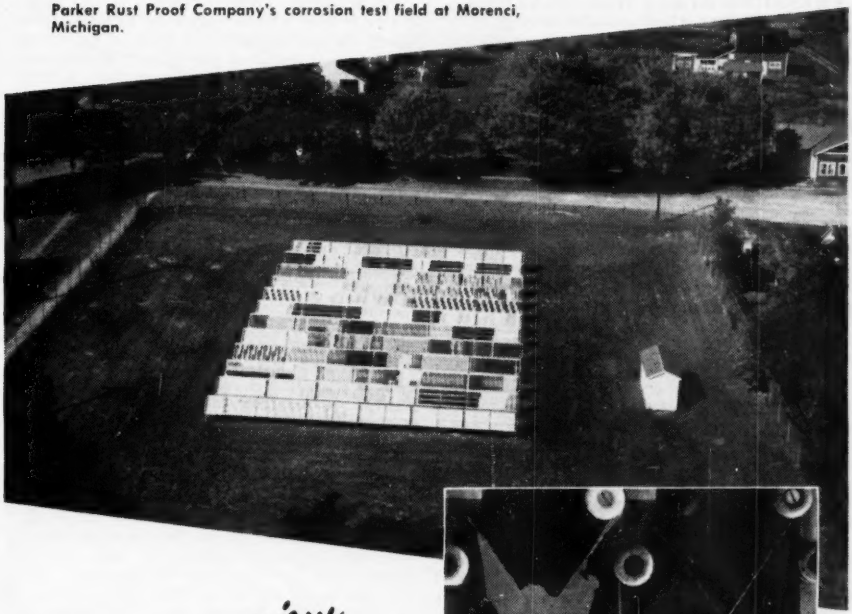
The booklet suggests many applications where this process for depositing nickel plate without the use of electric current would be advantageous. Characteristics of the process, thickness and hardness of the deposit, and type of equipment required are described in the folder.

BRIGHT RHODIUM SOLUTION. An illustrated folder available from **Sel-Rex** Precious Metals, Inc., 229 Main St., Belleville 9, N. J., lists the service facilities of the company and describes the use of the Bright Rhodium Process. Points covered are materials and equipment needed, general operating conditions, and general information of value to users or prospective users of the process.

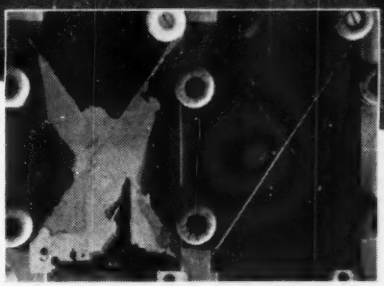
SYNTRON CATALOG SHEET. An illustrated catalog sheet which lists a number of the drilling, grinding, buffing, and sanding tools, and accessories, produced by Syntron, is available from the **Syntron Company,** Homer City, Pennsylvania. The Model No. 966 six-inch Sander-Polisher, an all-purpose tool which can be used for drilling, orbital fine sanding, and bench grinding is illustrated and described, together with various accessory attachments. The Model No. 12L and the Model No. 14S electric drills, and accessories are also included.

PHOTOVOLT GENERAL BULLETIN No. 100. A bulletin containing brief descriptions of photoelectric and electronic measuring instruments manufactured by **Photovolt Corporation,** is available from Photovolt Corp., 95 Madison Ave., New York 16, N. Y. A number of recently developed items, including pH Meters, are pictured and described.

Parker Rust Proof Company's corrosion test field at Morenci, Michigan.



Birds-eye view of a strange crop



What weather does to finishes! Panel left, paint over untreated aluminum. Panel right, paint over Bonderite-treated aluminum. 11 months outdoor exposure.

A crop of 6,400 metal panels is tended in Parker Rust Proof's outdoor test field. The harvest is facts on the durability of various finishes over various metals.

Conditions here are the same as are met by painted products in daily outdoor use. The sun and the wind, the rain, sleet and snow pound at these panels continually. Parker technicians watch each set of panels individually, observe their condition, chart results at regular intervals.

This large-scale outdoor testing program, continuous since 1935, has helped build Parker's great fund of valuable information on how to control corrosion. The facts we learn from the corrosion test field are passed on to guide our customers to more effective, more economical surface treatments for metals.

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

Since 1915—leader in the field

PARKER RUST PROOF COMPANY

2172 E. Milwaukee Ave., Detroit 11, Michigan

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces

PRESSURE-BLAST WET-BLASTING. Complete information on deburring, die and mold polishing, blending grind lines, scale removal, honing of cutting tools and cleaning before plating with both regular velocity and high velocity Pressure Blast wet-blasting equipment is available in a new, fully-illustrated, 8-page booklet issued by the manufacturer, **The Cro-Plate Co., Inc.**, 747-6 Windsor Street, Hartford 5, Connecticut. Dozens of "before and after" photographs depict actual case histories. Sections of the booklet are devoted to automatic, high-production rate machines, abrasives and Metal-Gard, a new rust preventative to be used following wet blasting operations.

WORKLON CATALOG. The catalog features a complete line of men's work clothes in both Du Pont's Orlon and Union Carbide's Dynel. Both fabrics are acid and caustic resistant and have tremendous economy appeal for chemists, laboratory and factory technicians, as well as those engaged in electronics and other industrial fields where acid conditions make work clothes replacements frequent and costly. For "super clean" areas a lint-free Orlon is available.

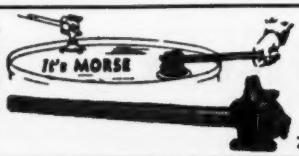
This completely illustrated book may be obtained by writing to **Worklon, Inc.**, 253 West 28th Street, New York, N. Y. Address all inquiries to the attention of Marvin Lippert.

PICKLING INHIBITOR. A 4-page folder is now available on **ACITROL 3129**, latest development in a line of pickling inhibitors produced by **E. F. Houghton & Co.**, Philadelphia, Pa., for the past 30 years. The bulletin outlines the functions and advantages of the inhibitor in terms of what the product can do to cut steel production costs and improve quality. Acitrol, a liquid which is readily mixed with the acid solution, is described as having excellent resistance to breakdown at boiling point, and is said to be equally efficient in hydrochloric, sulfuric, and phosphoric acids.

DIAMOND PRODUCTS IN PROTECTIVE COATINGS. A booklet of over 80 pages, presenting detailed information concerning the properties obtainable by properly formulating paints with Diamond Alkali Company products, is available from **Diamond Alkali Company**, Cleveland 14, Ohio. Sections on use of Diamond products, Surfex and Multiflex MM, include use of Surfex in high lustre and low lustre formulations; use of Multiflex MM in lacquer, industrial, and maintenance enamels. One entire section is devoted to formulations of varnish, enamels, flat paints, undercoat and sealers, and federal specification paints. Another section covers the use of Chlorowax 70 in the formulation of fire retardant paints and shingle stains.

MASKING TAPE
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
For quick, accurate masking operations.
PHONE OR WRITE **PANOCO**
505 Carroll St., Brooklyn 15, N. Y.

ELIMINATE ZINC PLATING HEADACHES
by purifying your solution with
McKeon's Zinc-Brite
Write for complete information.
Sulphur Products Co., Inc.
228 McKEON WAY GREENSBURG 6, PA.

Send NOW for this FIT-ALL
DRUM PLUG WRENCH
Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!


THOUSANDS IN USE saving time, labor, accidents!
SATISFACTION GUARANTEED.... **$3.30**
Non-sparking type $5.10
Plus Parcel Post
MORSE MFG. CO., Inc.
762 W. Manlius St., E. Syracuse, N. Y.

Youngstown. The 1,150-[illegible] of the 25 district furnaces in mobile

N.J.M. Announces the Availability of Non-Allocated Nickel Anodes!

Manufactured from Grade "A" Scrap Under A.S.T.M. Specification B-39-22

ELIZABETH, N. J.—It was announced by Mr. A. Kerzner, vice president of New Jersey Metals Company, Elizabeth, N. J., that, as a result of increased plant facilities, his company is now in a position to supply non-allocated, standard oval shaped nickel anodes in substantial quantities. Heretofore, the bulk of the company's nickel anode production has been confined to a reconversion service of anode ends and stubs to new anodes.

In reply to questions concerning the procurement of the nickel, the comparative costs and the quality of the scrap nickel anodes, Kerzner stated that his company buys pure nickel scrap at the current scrap market price, melts and casts it in their own foundry, and sells it at cost plus the standard casting fee.

Insofar as comparative costs between new and scrap nickel anodes, the latter is more expensive but not prohibitively so. Actually, the price of the scrap nickel anode is in direct proportion to the price necessary to buy the scrap. The casting fee remains the same regardless.

The quality of scrap nickel anodes measures up to the finest new nickel anodes on the market and are guaranteed as such by New Jersey Metals Company.

Kerzner further stated that for the past six months extensive tests have been made by some of the largest plating plants in the country, and in each case the report has been highly favorable.

NEW YORK, Aug. 24.—The Iron and Steel Institute [illegible]

Call Elizabeth 2-6465 or wire immediately for prices and complete information.

New Jersey Metals Co.

Serving industry from coast to coast since 1920

710 ROCKEFELLER ST., ELIZABETH 2, N. J.

N.J. METALS

PLATECOIL SURVEY. A special report, **INDUSTRY REPORT 12**, on the use of Platecoil units in the automotive industry is available from the **Platecoil Division of Tranter Manufacturing, Inc.**, 735 East Hazel Street, Lansing 4, Mich.

The illustrated survey describes three installations in automobile manufacturing and supplier plants where Platecoil has resulted in more efficient heat transfer with less down time.

Platecoil is essentially two sheets of metal embossed to form channels for the passage of the heating or cooling liquid, and joined by resistance welding.

DIPPING BASKETS. The C. O. Jelliff Mfg. Corp., Southport, Conn., has available a four-page leaflet illustrating and describing their dipping baskets and listing the metals in which they are available. Illustrated also are two baskets designed by Jelliff for a customer's specific needs. Designing and fabricating baskets for specific needs is a Jelliff specialty.

ANGLER CHEMICAL PRODUCTS BULLETIN. A bulletin available from **Angler Chemical Co.**, 20 Freeman St., Norton, Mass., describes the several cleaners, paint stripping compounds, burnishing, deburring, or pressure washing compounds, and phosphatizing chemicals, supplied by the company. Each product is described as to most advantageous use and its operating characteristics are covered briefly.

ENDURION. Rust Proofing and Metal Finishing Corp., Commercial Ave. & Binney St., Cambridge 42, Mass., has available a folder describing the Endurion process of chemical immersion which converts the surface of the metal to a dense, fine-textured finish. Pictured are some of the items on which Endurion can be used as a final finish or as a base for paint.

SHERWIN - WILLIAMS HEETCLAD. The Hot Lacquer Process . . . what it is . . . why it offers savings in material and application costs, application data, a partial list of hot spray units, and typical finishing systems are included in an eight-page booklet, **BULLETIN H-102**, available from the **Sherwin-Williams Co.**, 101 Prospect Ave. N.W., Cleveland 1, Ohio.

A NEW ANODIC COATING FOR MAGNESIUM. Reprints of the article, "A New Anodic Coating for Magnesium," by H. K. De Long, are available from **The Dow Chemical Co.**, Midland, Michigan. Mr. De Long discusses in detail the Dow No. 17 Anodize process for the protective coating of magnesium alloys by anodic oxidation. The coating, developed by the metallurgical laboratories of Dow Chemical Co., is of the refractory ceramic type, withstanding heating to the melting point of the base metal without decomposition. A summary of the information contained in the article indicates that this process has displayed six specific advantages, which are listed.

METAL TREATMENT DATA. An actual sample of Vinsynite, a metal pretreatment used in metal finishing and maintenance, is included in a new set of literature released by **Specialty Coatings, Inc., Division of Thompson and Co.**, Oakmont, Pa. The set comprises three pieces, one containing an actual specimen of the product applied to a panel of mild steel. Sections of this panel show graphically how Vinsynite combines pretreatment with the deposition of a thin organic film, thus providing both excellent adhesion and resistance to corrosion. The other pieces illustrate Vinsynite in use on a wide variety of products and outline the simplified, low-cost application methods by ordinary brush, spray, dip, flow or roller. Also included are test data showing how Vinsynite stands up under salt spray and distortion tests. The complete set will be forwarded free upon request.

For a real good polishing job use

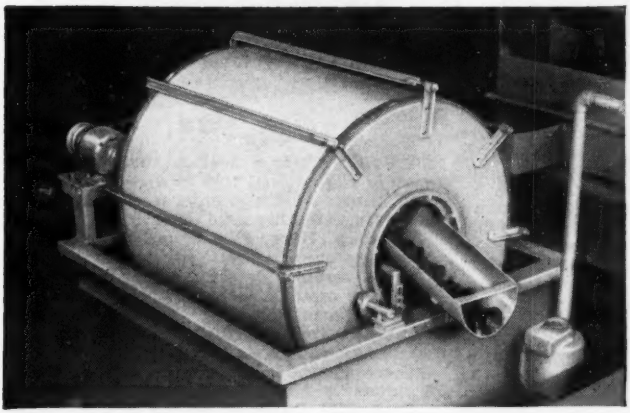
Keystone TURKISH Emery

FRESH SUPPLY AVAILABLE

KEYSTONE EMERY MILLS *Write for Sample* **4316 Paul St., Phila., Pa.**

The MURRAY WAY INDUSTRIAL FILTER

A Revolutionary Development in Solution Reclamation That Gives You These Money-Saving Features!



- AUTOMATICALLY OPERATED
- SELF-CLEANING
- ECONOMICAL
- COMPACT
- ADAPTABLE

The Murray-Way Industrial Filter automatically rotates fresh filtering area into position while simultaneously ejecting the contaminant. With this new unit costly consumption of throw-away filtering media is eliminated since the wire filtering screen has many times the life of cloth filtering webs.

The Murray-Way Industrial Filter is a compact unit. It offers unusually great filtering capacity in proportion to area occupied. Amazingly adaptable, the Murray-Way Filter may be used with an individual machine unit or as a central filtering station for many units. Capacity of filtration may be easily increased by adding filters in tandem—separately or in the same tank, to meet requirements. A selection of filtering screen material and size of screen opening can be supplied in monel, stainless steel, brass or bronze to fit your requirements.

For technical details of operation—write for Bulletin F-5301.

MURRAY WAY **THE MURRAY-WAY CORPORATION**

POST OFFICE BOX 180 – BIRMINGHAM, MICHIGAN

AUTOMATIC POLISHING, BUFFING, GRINDING EQUIPMENT

TECHNICAL DATA SHEET ON ELECTROPLATED GOLD. Concise facts about electroplated gold are contained in a data sheet available from **Technic Inc.**, 39 Snow St., Providence 1, Rhode Island. The folder lists the following data on gold plate: physical properties, thermal properties, chemical and electrical properties, electroplating specifications, diffusion coefficients, and applications of gold plating in industry.

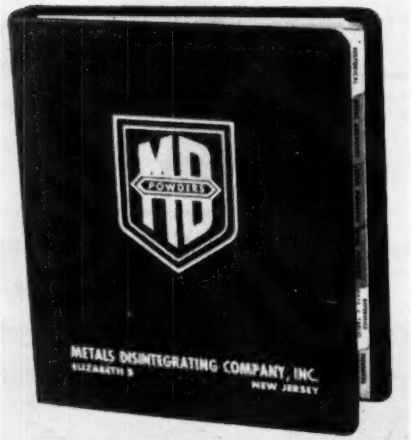
NEW BOOKS

MD BLUE BOOK. A 250-page indexed book, known as the "MD Blue Book," has been issued by **Metals Disintegrating Company, Inc.**, Elizabeth B, N. J., manufacturer of metal abrasives, metal pigments, and metal powders.

Behind a succession of brightly colored index tabs, the reader finds pages of informative data that makes for interesting as well as valuable reading. In the first section, is found a colorful description of the company and its activities from their early beginnings to the present time.

In the next section a most interesting story carries the reader through the various phases of metal abrasives. The particular applications of shot and grit, and their production by the Harrison Abrasive Division of the Company are described in detail, with numerous illustrations.

In a following section, the manufacture, evaluation and applications of Metal pigments in all their ramifications are completely covered. Here, in text and numerous illustrations one can visualize almost endless uses of MD aluminum pastes and powders and MD gold bronze powders — truly an "encyclopedia" on metal pigments in itself.



Following is a section that is a veritable educational trip into all the wealth of information and data surrounding the making, testing and use of MD metal powders. Here, all the many phases of the age-old science of powder metallurgy are covered in detail. And, as in the section on metal pigments, a complete glossary and bibliography are also included.

While the MD Blue Book contains a full share of basic technical information, there is appended a section which includes a complete collection of MD's Technical Bulletins on metal abrasives, metal pigments and metal powders.

This MD Blue Book, the company states, was intended to form a vital part of the reference data of executives actively concerned with the purchase or specifying of such products. It is being distributed without cost only to such interested and qualified parties. To those who do not so qualify, a price of $5 per copy has been established.

THE NORTON STORY. By Mildred McClary Tymeson. Distributed by Commonwealth Press, 44 Portland St., Worcester 8, Massachusetts. 324 pages. Illustrated. Price, $3.75.

The author interviewed over 300 active and retired employees of the Norton Company, during the past two and a half years, to form the foundation for her story. It is an intensely human story where emphasis is placed on people rather than on technical descriptions, financial statements, graphs and charts.

Is it a Stainless Steel finishing problem?

Specify NEW **BLACK MAGIC S. S.**

Now there will be no question as to how a Stainless Steel piece should be finished —

the answer .... **BLACK MAGIC S. S.**

Here is a dependable, economical, ONE bath, ONE salt, LOW temperature blackening process which produces an adherent and lustrous quality black finish in a matter of a few minutes.

remember .... **if it's Stainless -- specify BLACK MAGIC S. S.**

Also an ideal finish for cast and malleable iron.

Send samples for processing. A blackened part of your manufacture will convince you of the advantageous characteristics of BLACK MAGIC for Stainless Steel.

Mitchell-Bradford

Manufacturers of Metal Finishing Processes, Rust Preventatives and Heat Treating Salts

THE MITCHELL-BRADFORD CHEMICAL CO.

2446D Main St. Stratford, Conn.

QUALITY PRODUCTS OF CHEMICAL RESEARCH

NEWS of the Industry

NEW PLANTS

The **CINCINNATI CLEANING & FINISHING MACHINERY CO.**, manufacturer of industrial cleaning, washing, paint finishing and baking equipment, recently established offices, engineering and estimating functions, and manufacturing in a new plant located at 2008 Hageman St., Sharonville, Ohio. The company operates two other plants in Ironton, Ohio, and, with the addition of the new plant, now has a total of 60,000 square feet of plant floor space.

Located on a five-acre plot with highway and railroad spur shipping facilities, the plant, of brick and concrete block construction (Figs. 1 and 2), contains 3,500 square feet of office and engineering space and 11,000 square feet of fabricating space. Included in that portion of the building devoted to office facilities are two large rooms, one devoted to engineering and design (Fig. 3), and the other allocated to estimating (Fig. 4), and purchasing, accounting, and other office

Fig. 1—(Left) The entrance to the new plant is of modern design and can be illuminated at night.

Fig. 2—(Below) A view of the new Cincinnati Cleaning and Finishing Machinery Company, Sharonville, Ohio, plant.

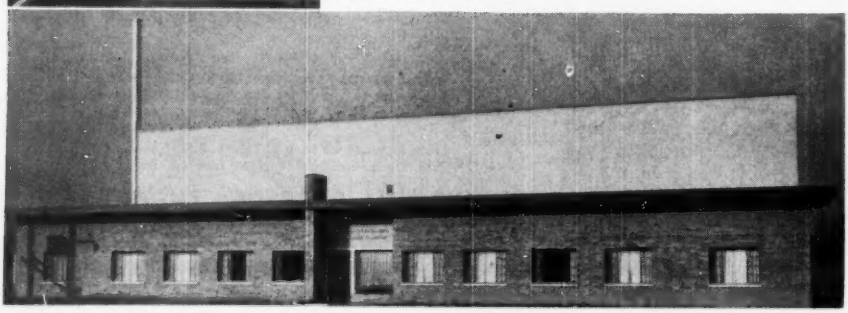


Fig. 3—A partial view of the design and engineering department of the Cincinnati Cleaning and Finishing Machinery Company.

Fig. 4—This section of the general office is devoted to estimating costs of various equipment of special design. The ceiling, throughout the general offices, is constructed of acoustic tile and is suspended below the roof joists to eliminate vibration. As can be noted, the fluorescent light fixtures are installed flush with the ceiling. In this illustration two air conditioning outlet fixtures located in the ceiling can be noted. Air is circulated through the offices and returned to the air conditioning system through ducts located at floor level around the walls.

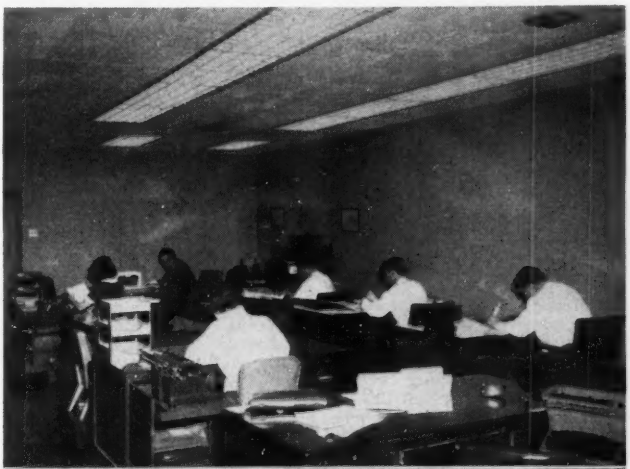


Fig. 5 — This section of the general office area is devoted to purchasing, accounting, and other normal office functions.

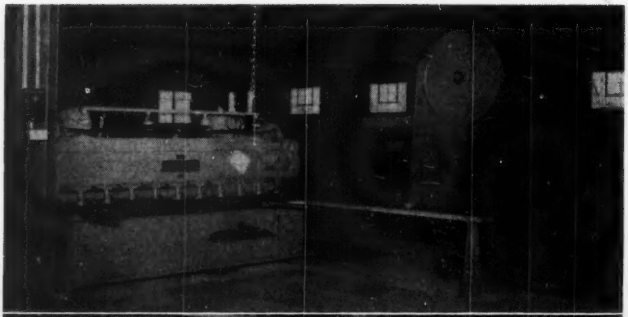


Fig. 6—Metal to be fabricated into finishing equipment of various kinds enters the plant through one of two large doors located adjacent to the layout and shearing area of the plant, here illustrated. As can be noted at the left of this photograph, a thermostat control and one 314,000 Btu. space heater is located at working level on one of the columns supporting the roof truss.

Fig. 7—Formed metal elements are assembled by welding or other methods in the central manufacturing bay of the new plant. In the background can be noted the five ton, 50-foot traveling crane, shown here being used to move a large washing machine section from one location to another.

functions (Fig. 5). Attractive reception room, private offices, and a well-appointed conference room complete the general office section of the plant.

The manufacturing area occupies a space 115 feet long and 100 feet wide. The area is separated into three bays, one 50-foot bay extending the full length of the plant for progressive layout, shearing, and assembly functions (Figs. 6 and 7), including final finishing and test. Every machine is put in full operating condition and tested before it is shipped from the plant. The completed machines can be loaded for shipment through a large door at the end of the 50-foot bay. A five-ton, 50-foot traveling crane facilitates material and product movement through the plant. Electric power bus lines run the full length of the plant on each side of the center bay so that power is available where needed. Both 440 volt and 220 volt, 3-phase, and 110 volt, single phase is available in the plant.

A combination gas or oil-fired boiler provides steam for plant heating. The offices are completely air conditioned, and the manufacturing area is heated by means of five 314,000 Btu. steam, circulating air heaters mounted above the working area. Each heater is connected to an individual thermostat mounted at working level. Thus, differences of temperature in the working area are eliminated, and a uniform temperature throughout the plant is maintained.

Plant lighting is accomplished with incandescent fixtures in the center manufacturing bay, with fluorescent fixtures mounted at a lower level for close work in the two side bays. Office lighting is accomplished with fluorescent fixtures set in the acoustic tile ceiling. Lighting throughout is designed to fit the job and area in question.

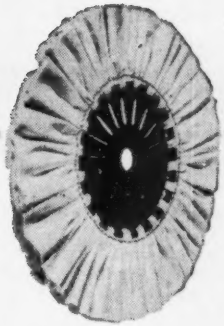
Facilities of the new plant will be concentrated on manufacture of specially designed finishing equipment, while machines of standard design will be fabricated in the company's two other plants.

A FEW OF THE MANY FORMAX PRODUCTS

STYLE C-20 CONTACT WHEELS

and F-26 Belt Lubricant

A C-20 flexible Contact Wheel will form itself to the shape of the work and permit the abrasive felt to polish contoured surfaces and F-26 Abrasive Belt Lubricant will increase belt life by preventing loading and glazing. Produces finer, smoother and brighter surfaces through lubrication.



ZIPPO BUFFS

These famous long-wearing buffs run cool under all buffing conditions. Constructed of high count bias-cut cloth or sisal mounted on safe steel centers. Available in a wide range of densities and center diameters.

A complete line of buffing compounds in bar form as well as in liquid form for brush or spray application. Also Flex-A-Glu polishing wheel cements.

Our Laboratory and Sales Engineering staff would welcome the opportunity to be of help in solving your finishing problems.

Send for descriptive literature

FORMAX MFG. CORP.

DETROIT 7, MICHIGAN

"THE FOUR McALEERS"

MANUFACTURED IN CANADA BY JOHN GALLOWAY LTD., KITCHENER, ONT.

Binks Toronto Plant

The opening of its new Canadian plant at 14 Vansco Road, Toronto, Ontario, has been announced by **BINKS MANUFACTURING COMPANY OF CANADA, LTD.**, maker of spray painting equipment.

This modern building, which provides for complete sales and service operations, replaces the Binks plant formerly located in Windsor, Ontario.

Covering an 80 by 150 foot ground area, the building fronts on Vansco Road. It is constructed of brick, steel and concrete and so designed that materials and finished products move in a smooth flow with economy of time and handling. Of the 10,000 square feet of floor space, 1,000 are devoted to office purposes and the balance to warehousing and light manufacturing operations.

Binks Toronto sales manager, Ray Pineau, will make his headquarters here. Roy A. Higgins is the office manager.

Binks direct representatives in Canada are Benjamin M. Carter in the Windsor-London area, Robert Attaway in the Toronto-Hamilton territory and Kennetn Alguire, working out of Montreal, wno will cover the province of Quebec. Robert L. Bateman of Windsor, Ont., is Secretary of Binks Mfg. Co. of Canada, Ltd.

Binks products will continue to be distributed and serviced in Western Canada (Manitoba, Saskatchewan, Alberta and British Columbia) by **JAMES B. CARTER, LTD.**

With the announcement of completed plans for a new and modern paint plant, now being built to replace the fire-ruined 55-year old Standard Paint and Varnish Company of Windsor, Ontario, Canada, came a further report that the company name would be changed to **RINSHED-MASON COMPANY OF CANADA, LIMITED.** Construction is underway at the site of the old plant at 845 Wyandotte Street, Windsor.

This change became effective September 1st, according to president Frederick G. Weed, who also stated that paint production is expected to be resumed in Windsor by December, 1953. Final construction is scheduled for completion in February, 1954, enabling R-M to approximately double the former output of household, automotive and industrial, railroad, marine, commercial maintenance, and other type finishes. New lines of specialized industrial and military finishes will be added.

Total rebuilding, estimated at $1 million, will include over 50,000 square feet of floor space.

Construction has begun on a new laboratory building to house chemical research at **BATTELLE MEMORIAL INSTITUTE**, Columbus, Ohio, Dr. Clyde Williams, Institute President, has announced. Workmen are now preparing the foundation for the new structure to be built at an estimated cost of $1,400,000.

The new building—Battelle's seventh major structure in Columbus—is slated for completion in the fall of 1954. The four-story brick and concrete structure will have outside dimensions of 63 by 290 feet. Plans include provision for space for pilot plants used in chemical engineering research.

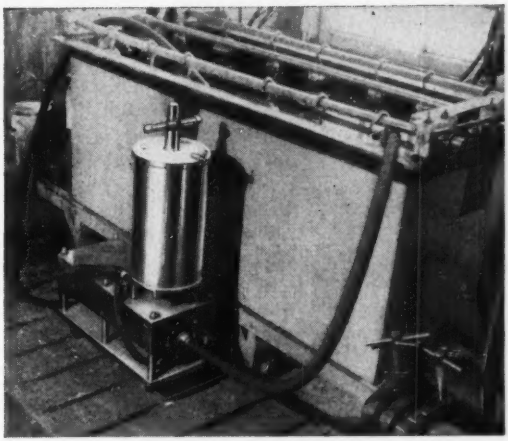
COMPANIES

Recently the **AMERICAN CHEMICAL PAINT COMPANY** sponsored an international convention which brought together chemical manufacturers of 42 nations at the firm's plant in Ambler, Pa., and in Washington, D. C. This convention was unique in that it brought together U. S. Government officials, college professors, and so many representatives of private industry in foreign countries.

The visitors, among them some of the world's leading industrialists, use ACP trademarks, formulas, experience and facilities as licensees under know-how contracts, but the American Chemical Paint Company has no direct financial interest in its overseas associates.

Here's how to cut your losses

get better finished plated work — save time and labor



The *"Sealed-Disc"* Filter will remove all dirt, dust, and sludge from your plating solutions. You will no longer worry about pitting, spotting, poor adhesion, formation of nodules, etc.

More and more platers testify to the remarkable savings in operating time and labor that the *"Sealed-Disc"* Filter gives them. These cost-minded platers get better finished plated work and have found that their solutions last l o n g e r. *"Sealed-Disc"* Filters, designed to meet plating room requirements, are smaller, more compact and portable, than ordinary conventional filters.

Regardless of the size or type of your installation, there's a *"Sealed-Disc"* Filter to "fit your job". You can depend on a *"Sealed-Disc"* Filter for positive, trouble-free performance that's proof against even the invisible impurities that cause nodules and porousness, proof against losses caused by rejects and reworking. Write for complete details or contact your regular plating supplier.

ALSOP

ENGINEERING CORPORATION

Filters · Filter Discs & Sheets · Mixers · Agitators

812 Keen Street Milldale, Connecticut

Other Alsop Plating Room Equipment

We manufacture a full line of Mixers and Agitators covering a complete range of sizes, for mixing, blending, and dissolving. Stainless Steel Mixing Tanks are also available in a wide range of capacities. For full details and illustrations write for your free catalog.

J. O. J. Shellenberger, vice president and director of the International Division of the American Chemical Paint Co., Ambler, Pa., greets delegates to the firm's fall convention visit to Washington, D. C. Left to right: Mr. Shellenberger, E. E. Schnellbacher, Assistant Director for Intelligence and Service, U. S. Department of Commerce; Folke Bigner, managing director of Bigner & Co., AB, Sweden; Dr. Richard K. Tam, agricultural consultant to Hawaiian Gas Products Co., Honolulu, T.H.; owner of Chemical Weeders of Hawaii and consultant to the Pacific Pineapple Co.; Hohei Suematsu, president and director of Nissan Chemical Industries, Ltd., Tokyo, Japan.

Company and university experts addressed the delegates for four days in Ambler. U. S. Government officials talked with them for two days in Washington, D. C.

Among others heard by the delegates were Samuel W. Anderson, Assistant Secretary of Commerce for International Affairs; Loring K. Macy, Director of the Office of International Trade; E. E. Schnellbacher, Assistant Director for Intelligence and Services; and Col. H. H. Haas, U. S. Department of Defense.

American Chemical Paint Co. pioneered the chemical cleaner which made the painting of steel automotive bodies practical and was a pioneer in chemical weed and brush killers. While the agricultural side of the convention proved more dramatic, the larger part of the company's business is in the corrosion preventive field.

Six top-ranking salesmen for **THE SHERWIN - WILLIAMS CO.**, together with their wives, have been awarded a five-day trip to Cuba as guests of the paint company.

The six are first place winners in their respective classifications in the Sherwin-Williams National Top Achievement Contest for the 1953 fiscal year. Sales personnel from coast to coast participated in the contest.

Arthur H. Burt, vice president and didector of sales, announced that the following were the 1953 sales champions: Frank R. Buckley, branch manager, Portland, Maine; J. Frank Nash, dealer representative, Walla Walla, Wash.; James A. McDowell, painter-maintenance representative, Dallas, Texas; Edward M. O'Brien, transportation zone representative, Chicago; William M. Doyle, industrial sales representative, Chicago; Clinton A. Isaacson, automotive sales representative, Chicago.

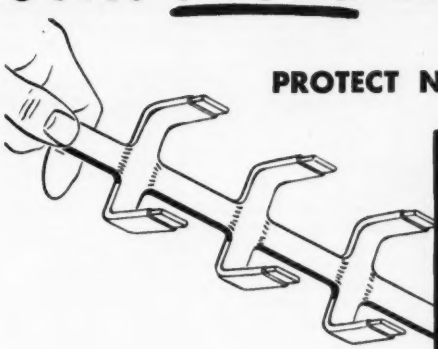
In addition to the expense paid trip for himself and his wife, each of these winners will receive a jeweled platinum lapel emblem bearing the "Cover the Earth" symbol, plus substantial cash awards.

The Top Achievement Contest was inaugurated last year. Sales to new customers, together with total sales gain, constituted the basis for determining the winners. A point system was established. Contest rules were drafted to give the representative operating under conditions of limited opportunity an equal chance to compete with men in more important areas.

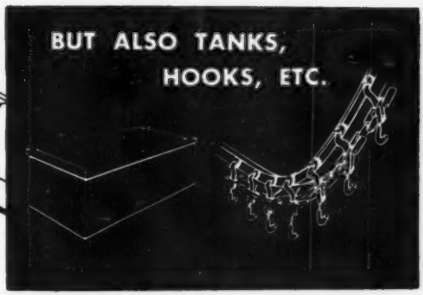
A total of 78 other representatives and branch managers throughout the country won lapel emblems in gold and cash awards for winning first, second or third place in their respective sales regions and zones.

MINNESOTA MINING & MANUFACTURING CO. and **GUSTIN - BACON MANUFACTURING CO.** of Kansas City, Mo., have announced an agreement whereby 3M acquires certain Gustin-Bacon patents and inventions relating to the manufacture of glass fiber reinforced plastic pipe.

How to cut costs still more with "218X"



PROTECT NOT ONLY RACKS . . .



COATING 218X is so tough, so long-lasting a coating that the more you use it, the more money-saving protection you get. Of course, you derive the biggest benefit from the outstanding application for Coating 218X – protection of racks.

This green plastisol stands up in all cleaning, plating, and anodizing solutions—even vapor degreasing cycles. It resists impact and abrasion without chipping, cutting or damage. In short – it means minimum rack coating costs.

You can do the same on this other equipment:

- **Plating barrels**
- **Drain boards**
- **Anode hooks**
- **Tank screens**
- **Tote boxes**
- **Dipping baskets**

–all these and more can be protected longer, and with less maintenance expense, by means of the same Coating 218X you use for racks.

Make more use of your Coating 218X –you'll find *many* places where it can save you money, time and equipment. We'll be glad to tell you how to apply it.

UNICHROME Trade Mark **COATINGS for METALS**

Metallic . . . . . Organic . . . . . Decorative . . . . . Protective

Products of UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N. Y. • Detroit 20, Mich. • Waterbury 20, Conn. • Chicago 4, Ill.
Los Angeles 13, Calif. • In Canada: United Chromium Limited, Toronto, Ont.

The agreement also provides that the two companies cooperate in research and development work concerned with perfecting and improving the glass plastic pipe together with a line of fittings and couplings.

Gustin-Bacon, pioneer producer and developer of glass fibers and of plastic bonded products composed from glass or organic fibers, has been actively engaged in the development of glass fiber reinforced plastics since the introduction of this new structural material during World War II.

Minnesota Mining & Manufacturing Co., best known for its "SCOTCH" Brand tapes, "SCOTCHLITE" Brand reflective sheeting, abrasives and adhesives, has had extensive experience in plastics research and manufacture.

H. P. Buetow, 3M president, said his company is interested in manufacturing and selling the new pipe and fittings just as soon as development has been completed and manufacturing equipment is available. Gustin-Bacon may undertake the manufacture and sale at a later date.

THE COOPER ALLOY FOUNDRY CO., Hillside, N. J., producer of corrosion resistant alloys, has announced the extension of its product line to include plastic pumps, valves, accessories and fittings. Company president, Harry A. Cooper, explained that in order to meet the increased demand for processing without danger of metallic contamination and to fully satisfy the severe corrosion resistance requirements of the chemical processing industries, Cooper Alloy has acquired interest in Vanton Pump Corp., Empire State Building, New York. Vanton Pump Corporation produces the patented corrosion-resistant "flexi-liner" plastic pump and a unique line of polyethylene valves, and fittings.

The **ATLAS MINERAL PRODUCTS COMPANY** of Mertztown, Pa., has announced the appointment of Wagner Brothers, Inc., of 432 Midland Ave., Detroit 3, Mich., as exclusive fabricators in the Detroit area for Ampcoflex*, and Pee Vee Cee*. In addition to the polyvinyl chloride fabrications and fittings line, Wagner Brothers will apply Atlas-Tavon*, Neobon* lining materials.

* Registered trademark.

Michigan and Northern Indiana sales representatives of the Industrial Equipment Division of the **DETREX CORPORATION**, Detroit, manufacturer of industrial metal-cleaning machinery and chemicals, recently held a conference at the Hotel Fort Shelby on "creative selling."

The conference, described as a refresher course in the numerous applications for metal degreasing equipment, was presided over by David E. Williard, sales manager of the division. A. O. Thalacker, Detrex president, addressed the group at luncheon and reported that the consumption of industrial cleaning solvents in the country this year represented a 20 per cent increase over 1952.

Use of ultrasonic waves to clean intricate metal parts, a development pioneered by Detrex, was demonstrated at the conference.

Announcement of the formation of **ROHCO CORPORATION**, 4220 East Eleventh Avenue, Hialeah, Florida, has recently been made by **R. O. HULL & COMPANY, INC.**, manufacturer of plating specialties. C. J. Whitworth will supervise the new service to Florida plating and metal finishing companies.

Rohco Corporation supply service assures prompt delivery of products of R. O. Hull & Company, Inc., for cadmium and zinc brighteners and a dozen electroplating specialities including Hull Cells; Enthone, Inc., with approximately 75 special products for metal treatment; Hanson-Van-Winkle-Munning Company, for plating and polishing equipment and supplies; Forcite Corporation, anode baskets; E. I. duPont de Nemours & Company for cyanides; General Electric for both selenium and copper oxide rectifiers; Heil Process Equipment Corp., for lined tanks, heating coils, heat exchangers, and so on, Kocour Company for analytical sets and thickness testers.

Two new products were announced at the **PARKER RUST PROOF COMPANY'S** 1953 Sales-Service meeting, held in Detroit. The new products are Parcolac 101 Black and Parcolac 102 Aluminum, new pigmented phenolic resin finishes for use over Parco Compound.

Parker technical representatives, whose home territories cover the nation, were also given full information by Parker's cold forming specialists on recent developments in that field. The use of

Eliminate Hand-Wiping of Plated and Lacquered Parts

Designed to fit into existing plating lines, the Metalwash Spotless Dryer may be supplied with its own conveyor and drive. Available in any size, with or without cold, fresh water spray rinse.

Metalwash* manufactures a full line of cleaning machinery for plating, painting, lacquering, phosphatizing.

Write for free illustrated catalog.

*Reg. U.S. Pat. Off.

NEW: *Metalwash announces the first major change in Vapor Degreaser design in more than 20 years. Metalwash Improved-Design Degreaser includes these features:*

- **Obstruction-free tank walls**
- **Demand-type water control**
- **Removable pump chamber and water separator**
- **Simplified maintenance**

Write for illustrated catalog

METALWASH
MACHINERY CORPORATION
915 North Ave., Elizabeth 4, N. J.
Representatives in principal cities

first with the finest for washing, pickling, drying, degreasing

Bonderite and Bonderlube is spreading rapidly from defense items to civilian manufacturing. The cold forming training program, carried on continuously, is designed to feed the flow of up-to-the-minute data on extrusion and deep drawing through all Parker technical representatives to their customers.

R. W. Englehart, president, and M. B. Roosa, vice president in charge of sales, just returned from conferences in Europe with Parker's affiliates (Pyrene Company in England, Metallgesellschaft in Germany, and Societe Continentale Parker in France), discussed developments at these plants. Parker maintains a constant exchange of information with its foreign affiliates and tests and evaluates all new European techniques and products for adaptation to U. S. production.

Leonard T. Beale, chairman of the board of the **PENNSYLVANIA SALT MANUFACTURING COMPANY**, observed his 25th anniversary with the company recently at a luncheon attended by executives of the company at the Midday Club in Philadelphia.

Mr. Beale, a director since 1923, was elected president of Pennsalt and its subsidiaries in 1928. He became chairman of the board of directors in 1949 when he was succeeded in the presidency by George B. Beitzel.

Mr. Beale supervised and directed such projects as Pennsalt's general diversification program; expansion into the Pacific Northwest; expansion of research and development, and construction or acquisition of seven of Pennsalt's present nine plants.

NEW POSITIONS

Norton Company, Worcester, Mass., has announced five appointments and one retirement among its outside sales personnel.

STEWART J. BELL, abrasive engineer in the western Michigan area for many years, will retire after almost 40 years with Norton.

ALLEN C. MOORE, formerly of the Detroit Sales Engineering Department, has been named an abrasive engineer and will assume Mr. Bell's former duties.

HARLAN W. COBB, presently office manager of Norton's Cleveland office, will become a field engineer covering the area serviced by that branch.

PHILIP H. THRESHIE, formerly a field engineer on the West Coast, has been appointed an abrasive engineer and will cover that area in and around San Diego and the entire state of Arizona.

Two recent graduates of the sales training course have been named field engineers and assigned to the Los Angeles area. They are **ROBERT P. COOPER** and **ROBERT N. HAMILTON.**

N. F. Diederich

G. J. Doss, general manager of the Switchboard and Control Division of The Electric Products Company, Cleveland, Ohio, has announced the appointment of **N. F. DIEDERICH** as manager of engineering.

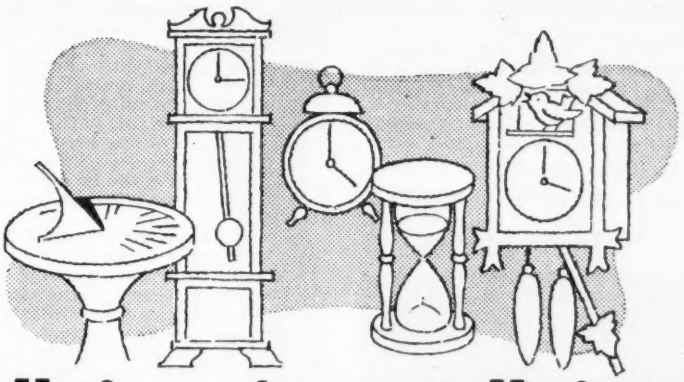
After graduating from Case Institute of Technology in 1932 with a B.S. in Electrical Engineering, Mr. Diederich spent seventeen years with The Clark Controller Company. He has long been active in A.I.E.E. affairs, having served the Cleveland Section as chairman of the Motor and Control Group and technical chairman of the Technical Group Committee. At present he is a member of the Professional Status and Registration Committee.

Mr. Diederich's responsibilities in his new position include the development of a complete line of controls for rotating equipment.

Ralph C. Persons, president of Sun Chemical Corporation, has announced the appointment of **ALVIN S. BAER** as chairman of Sun's Paint Group.

Mr. Baer joined the organization in 1930. As a specialist in the industrial marketing of materials for building maintenance, he initiated many sales ideas and product improvements which contributed to the company's rapid growth. Prior to his recent appointment he served as vice president and director of A. C. Horn Company, Inc.

Mr. Baer will continue to make his headquarters in Long Island City and will supervise the operation of the follow-



All timepieces tell time!

Time is an important element especially when it involves cleaning, stripping, coating or other pre-finish operations. Time is important as an element in quality and in cost.

Difficulty in attaining the result you seek may be a matter of timing only. Klem Engineers will not only specify the proper chemical for your job, but steer you in proper application, timing, temperatures, concentrations, etc. The extensive experience of this organization and lab facilities for exactly duplicating your conditions make possible more accurate analysis and recommendations.

3 OF 20 STANDARD KLEM PRODUCTS

MINIT KOTE—Cleans, neutralizes, phosphatizes ferrous metals and aluminum surfaces in 60 seconds for better paint adhesion.

BRITE KOTE No. 80—Protective dip before storage of copper and brass, removes all oxides and stains—an excellent protection from further corrosion

KLEM KLEANER No. 167-PG — Still or soak tank cleaner for non-ferrous metals. Economical, efficient — will safely remove normal types of soil.

KLEM PRODUCT of the MONTH

KLEM KOTE

Cleans and conditions iron, steel and aluminum surfaces, imparts a fine phosphate coating on metal surfaces for better paint adhesion. KLEM KOTE is non-toxic, non-inflammable, requires no special handling precautions Write for details.

KLEM Chemicals Inc.
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ing companies which comprise the Paint Group: A. C. Horn Company, Inc.; Contracting Division, A. C. Horn Corporation; Products Finishing Division, Hudson Paint & Varnish, Inc.; A. C. Horn Company Limited; and A. C. Horn Company of Texas.

ROBERT C. TREES has been appointed to the post of director of advertising, sales promotion and market research for

Robert C. Trees (left), Russell E. Reynolds

the Udylite Corporation, according to an announcement by Lawrence V. Nagle, Udylite executive vice president.

Mr. Trees was formerly advertising manager and chief estimator for the corporation. In this capacity he organized the estimating department of the Udylite Division. A graduate of Columbia University, he held executive positions in varied manufacturing fields prior to joining Udylite in 1943.

RUSSELL E. REYNOLDS has been named sales engineer.

Mr. Reynolds has been in the process and quality control department of a large manufacturing firm, and was formerly a research and production supervisor in the plating field. He was graduated from the University of Detroit with a bachelor of science degree in chemical engineering.

He will work in the Pennsylvania district, with headquarters at the Udylte Cleveland office.

Establishment of a South Central Region was announced by M. B. Roosa, vice president and sales manager of Parker Rust Proof Company, Detroit, at the company's annual sales-service meeting in Detroit.

The new region will include the southeastern and south central states. **B. L. DITTMORE,** veteran of 12 years on the sales-service staff of Parker, has been named manager of the South Central Region. He will have men stationed strategically throughout the territory, to serve the metal working industries in these states.

The new region office is at 1246 W. 70th St., Cleveland 2, Ohio.

NEIL PETERSEN, who for the past eight years has been a Parker Rust Proof Company technical representative in the Detroit area, has been transferred to the West Coast, according to M. B. Roosa, Parker vice president in charge of sales.

Mr. Petersen has worked closely with the automobile manufacturers in Detroit throughout his service with Parker, and brings his extensive experience in this industry to Parker's automotive accounts in the Pacific region.

He will work out of the Pacific Coast Region Office at Maywood, California.

The appointment of **DAVID M. RONEY, JR.,** as sales manager in the Electroplating Projects Department, Westinghouse Electric Corp., has been announced by G. W. Jernstedt, engineering manager of the Special Products Development Division.

Mr. Roney will be responsible for all electroplating sales activities. He will be located in East Pittsburgh, Pa. and will report to Mr. Jernstedt.

Before his new appointment, Mr. Roney was an application engineer in the Special Products Development Division. In 1943 he graduated from the United States Naval Academy and until 1948 was on active duty with the Navy. He then joined the Bendix Corporation in Detroit, and later took graduate work at the University of Pittsburgh. Mr. Roney came to Westinghouse in 1951.

WALTER F. HOSEK has been named to head the newly formed Sullivan Chemicals Division of the Sullivan Varnish Company, Chicago manufacturer of industrial coatings.

According to Mortimer Sullivan, president, the new division will provide a personalized research and development service on chemical coatings for manufacturers in the electronic, plastic and hard goods industries.

HARSHAW ANODES and CHEMICALS

You can depend on Harshaw products to keep your production moving. For more than fifty years we have concentrated on improving the quality of the anodes and chemicals used by platers.

NICKEL PLATING

. . . still and barrel . . . nickel anodes—all commercial grades and sizes . . . anode bags . . . single nickel salts—nickel chloride . . . nickel carbonate . . . nickel fluoborate . . . boric acid.

CHROMIUM PLATING

. . . pure "Krome Flake" 99.8% CrO_3 . . . sulphates less than .10% . . . lead, tin-lead and antimony-lead anodes.

COPPER PLATING

. . . copper ball anodes . . . Rochelle Salts . . . sodium and copper cyanides . . . copper sulfate . . . copper fluoborate.

CADMIUM PLATING

. . . ball and cast cadmium anodes . . . cadmium oxide . . . sodium cyanide . . . cadmium fluoborate.

TIN PLATING

. . . cast tin anodes . . . sodium stannate . . . stannous sulfate . . . tin fluoborate . . . acid tin addition agent.

ZINC PLATING

. . . ball and cast zinc anodes . . . sodium and zinc cyanide . . . zinc sulfate . . . zinc fluoborate.

LEAD PLATING

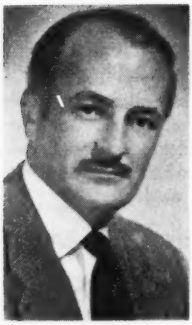
. . . cast lead anodes . . . lead fluoborate.

SILVER PLATING

. . . silver cyanide.

The HARSHAW CHEMICAL Co., Cleveland 6, Ohio

Chicago 10, Ill. • Cincinnati 13, Ohio • Detroit 28, Mich. • Houston 11, Texas
Los Angeles 22, Calif. • Philadelphia 48, Pa. • Pittsburgh 22, Pa. • New York 17, N. Y.



William A. Ross

WILLIAM A. ROSS has been appointed sales manager of the Circo Equipment Company, Clark (Rahway), New Jersey, manufacturer of vapor degreasers, metal parts washers and solvents, Melville Morris, president, nas announced.

Mr. Ross has been active in the metal finishing field for the past 20 years, and the last four years has engaged in sales activities of metal cleaning equipment and solvents.

A member of the American Society for Metals and the American Electroplaters' Society, his background of experience includes 10 years with Bendix Aviation Corporation where he was in charge of finishing operations at three of that company's plants.

William J. Jancik

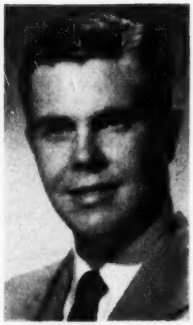
Daniels Plating Barrel & Supply Co., 129 Oliver St., Newark, N. J., manufacturer and distributor of metal finishing supplies, has announced the appointment of **WILLIAM J. JANCIK** to the sales department covering metropolitan New York and New Jersey.

Mr. Jancik attended City College of New York and the Newark College of Engineering. He is well qualified to offer assistance to metal finishers, having had charge of the metal finishing plant at the Burndy Engineering Co., New York City. He was also associated with the Aircraft Radio Corporation, Boonton, N. J.

DONALD F. GARRIGAN has been named sales representative for the New York Metropolitan Area by Better Finishes & Coatings, Inc., Newark, N. J.

Previously Mr. Garrigan was with G. J. Nickolas Co., Bellewood, Illinois, as a technical representative in the finishing field, with particular reference to mass production finishing of high value items.

Since joining Better Finishes early this year, Mr. Garrigan has been employed in the laboratory on formulation, testing and application work and so brings to his new assignment a combination of technical and operational experience in the application of finishes.

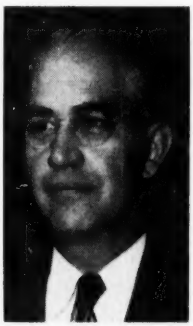


Donald F. Garrigan

Appointment of **PAUL J. LALONDE** as supervisor, Engineering Department, has been announced by Morris M. Messing, president of Bart-Messing Corporation of Belleville, New Jersey.

In his new position, Mr. Lalonde will direct all activities of the expanded Bart-Messing engineering department and will supervise layout and installation of entire plating plants and equipment.

Mr. Lalonde brings a wealth of professional experience to his new position. Prior to joining the Bart-Messing organization, he was associated with American Cyanamid Company. He was a consultant on plating plant installations and spent more than nine years with Hanson - Van - Winkle - Munning in both development and sales engineering work.

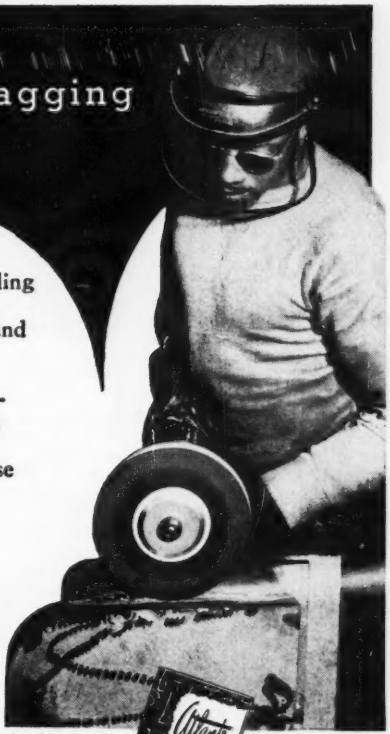


Paul J. Lalonde

In the graphic arts field Mr. Lalonde is best known for his development work in plating plants for electrotyping and rotogravure work. He has had numerous technical papers published on nickel plating and tin plating processes and plant layout for electrotypes.

Mr. Lalonde is a graduate of Rensselaer Polytechnic Institute, where he majored in Chemical Engineering.

Faster . . . Safer Snagging starts here



Faster because Atlantic Speed-Tested Grinding Wheels feature a smooth, floating action that requires less pressure, reduces fatigue and speeds up snagging from start to finish.

Safer because every Atlantic Wheel made — from the 2 inch size on up — is test run at a 50% higher speed than that required for normal snagging conditions . . . safer because every wheel features a special Resinoid Bond for extra strength and long life under high operating speeds.

Lower cost, too. Atlantic Grinding Wheels seldom have to be dressed . . . reduce downtime . . . help keep replacement costs at a minimum. Try them and see. Specify Atlantic Wheels next time you order.

Send for the complete, fact-packed Atlantic Grinding Wheel Catalog now. Save time . . . use the coupon.

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South Braintree 85, Massachusetts

ATLANTIC ABRASIVE CORP.
509 Pearl St., South Braintree 85, Mass.

Please send me the Atlantic Grinding Wheel Catalog

Name.....

Company.....

Street.....

City..... **State**.....

(Left to right) Richard Marshall, John S. Hart, Dr. Otto Kardos, Walter R. Lockwood.

JOSEPH LIND, combustion equipment sales engineer, formerly associated with the Carbomatic Corporation, has opened an office for the Burdett Manufacturing Company of Chicago at 53 Park Place, New York 7, New York. Mr. Lind will represent the Burdett Manufacturing Company in sales of combustion systems and complete finishing systems, including ovens, spray booths, and washers in Metropolitan New York, and Connecticut and New Jersey.

Joseph Lind

The Burdett Manufacturing Company has long been recognized for its pioneering and leadership in the field of gas-fired radiant heating systems for paint drying, dry-off, baking, cooking and other industrial processing.

DR. OTTO KARDOS has been appointed to the post of chief research electrochemist by Hanson-Van Winkle-Munning Company, manufacturer of electroplating equipment and supplies.

He has been associated with the H-VW-M organization for nine years. After receiving his Ph.D. from the University of Vienna, he worked as an electrochemist in Austria, and was later an electroplating consultant in France for four years.

JOHN S. HART has been named field electrochemist. Working out of the Detroit office, he will trouble-shoot and service customer plating installations in Michigan and Ohio.

Mr. Hart, who has worked in the finishing and plating field for the past 14 years, leaves Oakman Plating Co., Detroit, where he was general manager. He formerly worked for National Plated Products as works manager, and Chrysler Corp., Engineering Division, as a plating engineer.

Author of two articles on silver plating aircraft bearings, he is a graduate of Michigan State College, B.S., 1939, and Chrysler Institute of Engineering, M.A., 1941. He is a member of the Electrochemical Society and the American Electroplaters' Society.

The appointment of **WALTER R. LOCKWOOD** as district manager of the Indiana-Kentucky and Tennessee territory has been announced. Assisting him will be **RICHARD MARSHALL,** who has been newly appointed to cover Kentucky and Tennessee, along with a part of southern Indiana.

Mr. Lockwood, whose headquarters will remain in Anderson, Ind., will continue his direct sales responsibilities in the rest of Indiana. With the company for 20 years, he has worked in this territory for the past 13 years. Prior to that, he did electrochemical field service work for the company along the Atlantic seaboard. He attended Rutgers University, and is a member of the American Electroplaters' Society, Indianapolis branch.

Mr. Marshall, whose headquarters will be in Louisville, has just completed a two-year training program at the company's main office and laboratory. A member of A.E.S., he came to H-VW-M

... because H-VW-M anodes and plating chemicals are thoroughly tested here in this analytical laboratory. That's why we can stand behind our recommendations—and our products.
There's a lot that goes into the manufacturing of anodes and chemicals—a lot more than just following a formula. There's quality control, strict adherence to the rigid H-VW-M standards—constant checking for purity—and in anodes there's the important question of design as well as operating characteristics. That goes not only for all the standard H-VW-M anodes and chemicals, but also for the special types that are made for specific purposes.
The standards of purity of H-VW-M anodes and plating chemicals are but a few of the many results of H-VW-M's more than eighty years of constant development in electroplating ... a continuous policy best summed up in Platemanship—your working guarantee of the best that industry has to offer, not only in anodes and chemicals, but in every phase of plating and polishing.
here's how we prove the purity of our anodes and chemicals...
PLATEMANSHIP
PLATEMANSHIP
PLATING & POLISHING SOCIETIES EQUIPMENT SUPPLIES

For complete information on H-VW-M anodes and plating chemicals write for Bulletin AC- 108.

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.

PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BALTIMORE • BOSTON CHICAGO • CLEVELAND • DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • LOUISVILLE • MATAWAN MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) UTICA • WALLINGFORD (CONN.)

H-VW-M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

from the plating laboratory at National Cash Register Co., Dayton, Ohio.

Carl T. Dostale

John James, president of Electro-Glo Company, Chicago electropolishing chemical manufacturer, has announced the appointment of **CARL T. DOSTALE** as plant superintendent.

Mr. Dostale has been associated with the metal finishing industry for 17 years, during which time he has held supervisory positions with the Aluminum Company of America, Dover Industries, Hub Plating Works, Electro-Coatings, Inc., and Chromium Corp. of America. He is a member of the American Electroplaters' Society, and has contributed to several publications in the finishing field.

Michigan Oven Company, Detroit, designer and builder of ovens for industrial heating and processing, has announced the appointment of **C. A. WINDSOR** to the position of manager of the Wire Equipment Division.

C. A. Windsor

For twenty years Mr. Windsor has been connected with insulated wire and industrial heating engineering — five years with the Belden Manufacturing Company and the last seven years with Western Electric Company in wire enameling.

Prior to these affiliations he spent one and one-half years with the Bendix Aviation Corporation and eight years at General Electric in heating and control application. Mr. Windsor is a graduate of the University of Michigan.

MEETINGS

THE FOURTH INTERNATIONAL CONFERENCE ON ELECTRODEPOSITION AND METAL FINISHING, sponsored by **THE INTERNATIONAL COUNCIL FOR ELECTRODEPOSITION,** will be held April 21 through 24 at the Hotel Russell, London, England. Dr. William Blum will deliver the Hothersall Memorial Lecture to Institute of Metal Finishing on Tuesday, April 20.

The International Council for Electrodeposition, composed of the **AMERICAN ELECTROPLATERS' SOCIETY,** the **INSTITUTE OF METAL FINISHING (GREAT BRITAIN),** and the **COMMISSION BELGE DE L'ELECTRODEPOSITION,** have planned a special Ladies' Program, factory visits, a banquet, and dinner dance for their guests.

For further details consult:

Walter L. Pinner,
Houdaille-Hershey Corporation,
9120 Roselawn Avenue,
Detroit 4, Michigan; or
Dr. Walter R. Meyer,
Enthone, Incorporated,
P. O. Box 1900,
New Haven, Connecticut.

Or write directly to:

Dr. S. Wernick, Hon. Secretary,
International Council for Electrodeposition,
c/o Institute of Metal Finishing
32, Great Ormond St.,
London W.C.1, England.

GRAND RAPIDS BRANCH A.E.S., ELEVENTH ANNUAL EDUCATIONAL SESSION. Program begins 1:30 P. M. sharp! Saturday, January 23, 1954. Chairman: Clyde Kelly, 2nd vice president, A.E.S. First public presentation of the following papers:

"The Next Fifty Years—A Glimpse of the Future on the 50th Anniversary of Powered Flight," B. K. Stevens, Staff Engineer on Special Projects, Lear, Inc., Grand Rapids, Mich.

"Production Cleaning and Preparation of Metal Surfaces for Organic Coatings," C. W. Smith, President, Whitfield Chemical Co., Inc., Detroit, Mich.

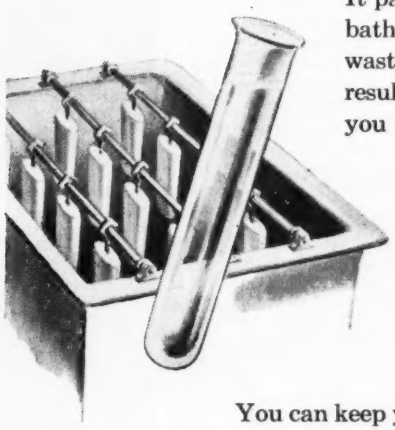
"Technology of Liquid Buffing Compositions," Robert V. Twyning, Twyning Chemical Specialties Co., Belvidere, Ill.

Title to be Announced, Dr. R. A. Schaefer, 1st vice president, A.E.S., Director of Research, Cleveland Graphite Bronze Co., Cleveland, Ohio.

Dinner-Dance at 7:00 P.M. (Tickets $10 per plate) from J. J. Hanney, 129 Arthur N. E., Grand Rapids, Michigan.

FOR BETTER PLATING—

baby your bath!



It pays to take good care of your plating bath. You'll get better adhesion . . . less wastage of scarce metals . . . improved results even with thinner deposits . . . when you keep the solution free of impurities.

Start CLEAN
Stay CLEAN

You can keep your solutions in top condition —easily and economically—by using Red Label Darco S-51 regularly. This carbon has every quality that electroplaters demand. It contains no traces of sulphides that could cause dullness, poor adhesion, or brittleness. It has exceptional adsorptive capacity; a little Darco takes out a lot of impurities. And it's a cinch to handle in the shop—wets readily, and mixes quickly into slurries.

Order your stock from your local supplier now. Be sure to specify Red Label Darco S-51, the activated carbon especially made for purifying plating solutions.

DARCO DEPARTMENT
ATLAS POWDER COMPANY
Darco General Sales Offices
60 East 42nd Street, New York 17, N. Y.
Atlas Powder Company, Canada, LTD., Brantford, Canada

When the headquarters site for the **41ST ANNUAL CONVENTION** of the **AMERICAN ELECTROPLATERS' SOCIETY** was considered a committee composed of Franklyn J. MacStoker, A.E.S. past president, Alexander N. Braun, president of the M.F.S.A., and George Schore, general chairman of the 1954 Convention, and their wives, who are members of the Ladies' Committee, sought to find a hotel which could house the entire convention and have the necessary banquet, meeting room, exhibit space and suite facilities for the comfort of the conventioneers. The committee decided on the Statler Hotel, which is centrally located on Seventh Avenue between 32nd and 33rd Sts.

Franklyn J. MacStoker

George Schore

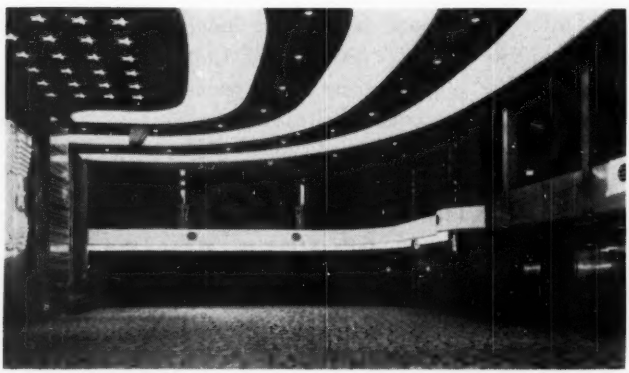
The large department stores are within walking distance of the hotel, and others can be reached easily. For other forms of entertainment, the Times Square District which houses the theater, movie, television and night club facilities, is but a few short minutes from the hotel. The entertainment will be made more directly available to the members by Moe Ranno's Visitor Entertainment Committee.

All of the large banquet and meeting rooms of the hotel have been made available to the housing committee, composed of Angelo Amatore, New York branch president, and George Herrmann, to assure the membership of adequate meeting and banquet space. The final Banquet will be held in the Grand Ballroom, which has a capacity of 1,600 people and is equipped with the most modern sound, lighting and stage facilities.

Angelo Amatore

Alexander N. Braun

The Cafe Rouge at the hotel features many of the outstanding entertainers of the country and boasts a dinner comparable to the best anywhere. For a quick meal, the Cafe Manhattan, an air-conditioned dining room, is available for breakfast, luncheon and dinner. The Penn Bar and Cocktail Lounge is one of the most relaxing sites of the hotel. The Coffee Shop is an economical eating place. It is air-conditioned and features counter and table service. There are



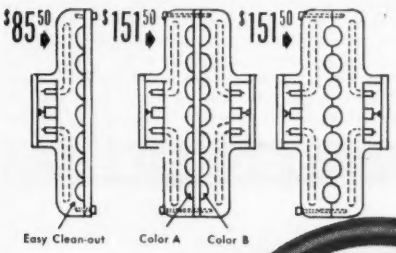
Grand Ballroom of The Statler Hotel

NOW... GREATER PERFORMANCE and ECONOMY THAN EVER!

in spraying HOT PAINT on all finishes.

3 METHODS OF OPERATION

SINGLE COLOR — TWO COLOR — DOUBLE CAPACITY



REVOLUTIONARY DESIGN

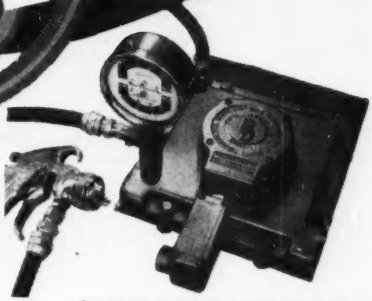
now provides greater simplicity, efficiency, and safety for continuous or intermittent applications, fixed or mobile.

THE BEDE "ECON-O-MATIC" PAINT HEATER

The New Model E Series at a new low price
Another example of Bede Leadership

The only heater of its type with built-in, time-tested Bede performance and safety, plus these important new advantages...

- ★ **Greater reservoir of latent heat**
- ★ **Greater heating capacity**
- ★ **Greater heat transfer efficiency**
- ★ **Quick, easy clean-out**
- ★ **Adjustable thermostat for accurate temperature control**
- ★ **Versatility of multiple units**
- ★ **Steady (adjustable) air power**



the BEDE MODEL E "ECON-O-MATIC"
Non-circulating
(standard) Paint Heater
Where circulation is not necessary
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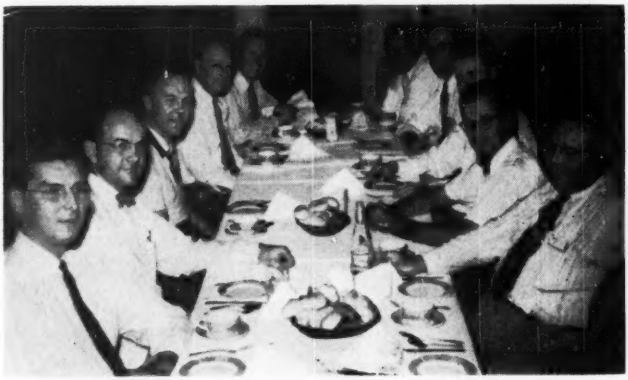
also many other large and well-known eating places in the area, such as Major's Cabin Grill, Rigg's, The Campus, Shein's, and numerous other bars and restaurants.

There are available for the supply group enough suites and parlors to house everyone under the one roof. The Housing Committee will contact the membership in the near future, and it is hoped that requests for rooms will be made as soon as possible.

The Lobby to the Grand Ballroom has been set aside for registration. This large and spacious area will be equipped to give the members fast and efficient service in registering. In order to facilitate registration, the committee, composed of Albert Fusco and Martin F. Maher, Jr., has set up a program of pre-registration for those wishing to attend the convention. This service will be available to the members without fear of loss of funds, since those who do pre-register but do not attend will have the money refunded.

SOCIETIES

A group of **CINCINNATI BRANCH, A. E. S.**, members assembled to honor their retiring treasurer, Charles T. Nuzum, and at the same time do some preliminary planning for the **1ST ANNUAL TRI-STATE REGIONAL MEETING** of the **AMERICAN ELECTROPLATERS' SOCIETY**, to be held in Cincinnati, Ohio, on April 3, 1954, at the Hotel Gibson. Shown (left to right) are: W. Wilson Loveless, Varland Metal Products; Wm. D. Gordon, MacDermid, Inc.; Charles T. Nuzum, Zippo Mfg. Co.; R. K. Rarick, Bendix Aviation Corp.; D. A. Taylor, Sealtron Corp.; A. R. Waters, Harshaw Chemical Co.; Robert D. Miller, Electric Auto-Lite Co.; Carl H. Truman, Electric Auto-Lite Co.; Charles Wise, Buckeye Products Co.; William Young, Wagner Bros., Inc.



A partial view of the members and guests who attended the Nov. 16 meeting of the **ROCHESTER BRANCH, A. E. S.**, to hear Ezra A. Blount, editor of PRODUCTS FINISHING, discuss, "Metal Finishing in Japan." Color movies made in Japan were shown, and an exhibit of Japanese electroplated and finished products was displayed.
(Photos by PRODUCTS FINISHING)

Dr. Calvin J. Overmyer

DR. CALVIN J. OVERMYER, vice-president of the Elliott Paint & Varnish Company, Chicago, Ill., has been elected to the presidency of the Federation of Paint and Varnish Production Clubs for 1953-54. He succeeds Gustave H. Wescott, whose tenure of office terminated at the close of the Federation's Annual Meeting in Atlantic City, N. J., October 28-31, 1953.

Dr. Overmyer, a past-president of the Chicago Paint and Varnish Production Club, has been active in Federation affairs for many years and committees he has headed include the Program, Paint Industries' Show, Meetings, and Joseph J. Mattiello Lecture.

The Federation of Paint and Varnish Production Clubs is a cooperative, nonprofit organization composed of more than 3,000 technologists and production personnel employed in the paint, varnish, lacquer, and allied decorative and protective coatings industries.

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December 4-5. Detroit Branch, A.E.S., Annual Educational Session and Christmas Party, 8:00 P.M., Statler Hotel, Detroit, Michigan.

Dec. 18-19. Newark Branch, A.E.S., Annual Educational Session and Christmas Party, Hotel Robert Treat, Newark, N. J.

Dec. 19. Rochester Branch, A.E.S., Annual Christmas Party. Liederkranz Club, Rochester, New York.

Jan. 23, 1954. Grand Rapids Branch, A.E.S., Eleventh Annual Educational Session, 1:30 P.M., Grand Rapids, Mich.

Feb. 13. Interim Meeting, A.E.S., 10:00 A.M., Royal York Hotel, Toronto, Ontario, Canada.

Apr. 3. Cincinnati Branch, A.E.S., First Annual Tri-State Regional Meeting, Hotel Gibson, Cincinnati, Ohio.

Apr. 21-24. Fourth International Conference on Electrodeposition and Metal Finishing, sponsored by **The International Council for Electrodeposition.** Hotel Russell, London, England.

Jul. 12-15. 41st Annual Convention American Electroplaters' Society, New York City.

NECROLOGY

W. EARLE SHUMWAY, manager of sales engineering at Norton Company, Worcester, Mass., died October 25.

Mr. Shumway had been with Norton since 1917. He started in the research laboratories and later became a sales engineer. In 1928 he was appointed district manager of the Hartford, Conn., office and in 1932 he became district manager in Chicago. Later he became sales manager of the Western Region and in 1950 he was appointed manager of sales engineering.

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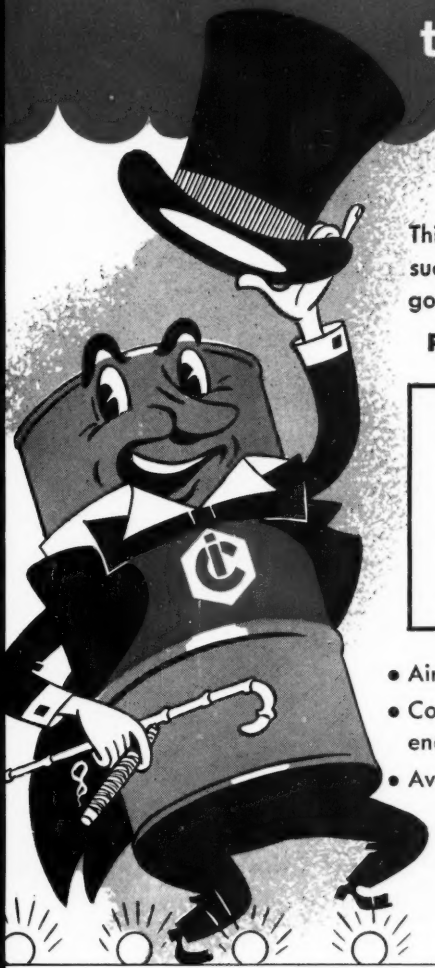

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